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GAS JOURNAL

LIGHT ✦ HEAT ✦ POWER ✦ BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

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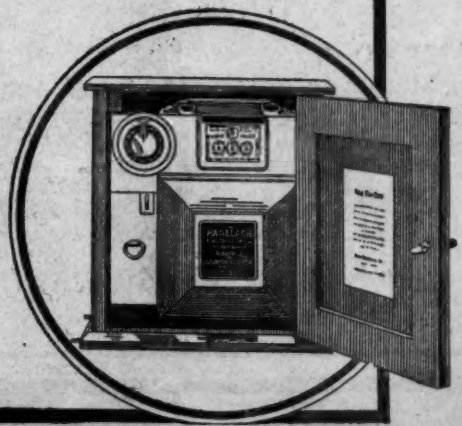

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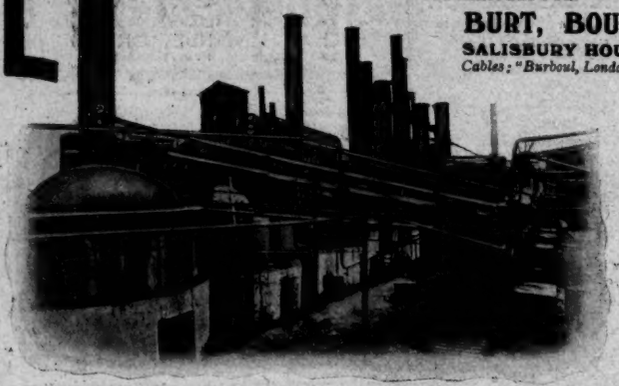

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EDITORIAL NOTES.

The Economics of Fuel Utilization.

IT is unlikely that the efforts that are now being made to elevate efficiencies in the utilization of coal will make any material difference to the demands upon the coal industry. Rather the chances are that success in that respect would assist, through economy per unit of factory production, to increase the world's demands upon the materials and goods of our industries, and so maintain and increase the requirement for coal. But let us suppose that the work of the Fuel Research Board and that proceeding in other quarters resulted in such efficiencies, and therefore fuel economies, that the demand for coal was actually and substantially reduced, there would be a set-off to industrial working economy in the fact that the lower the production of coal, the higher the costs; and the higher the cost of production, the higher the price to the consumer. We have no fear whatever that the supposition will materialize. Anyway, it would ill-become us in these enlightened days to regard the matter from that viewpoint. The efficient use of coal is of national importance not only in respect of its conservation in relation to the work accomplished by its expenditure, but because such efficient use means manufacturing economy throughout our industries, and therefore an improvement in our economic state in trading. The coal industry must not, therefore, selfishly look upon the work that is proceeding in the cause of fuel economy, the making of better use of our coal resources, and in rendering ourselves more independent of outside supplies of liquid fuel, as assailing its interests in any way. On the contrary, the work is assisting it, and in more ways than one—one of them being that it is promising, and will tend to develop, a larger market for the inferior coals, which will be a contribution to the economical working of the coal industry itself.

The foregoing point is raised by the discussion which succeeded a paper recently read by Dr. C. H. Lander, the Director of Fuel Research, on the work of the Fuel Research Board, before the Midland Institute of Mining Engineers. The paper was a masterly survey of the investigations the Board have in hand and in prospect. The scope is large; the field illimitable. The paper indicated a broad appreciation of what is wanted—viewed from the tripartite standpoint of national, industrial, and domestc needs. When it is considered that 139 million tons of coal out of 189 millions consumed annually in this country are burned in the raw state, while only the remainder is utilized by the coking and gas industries (and actually something less), and that it is proved beyond question that the greater part of the 139 million tons is used inefficiently and even wastefully, and to the detriment of health and property, there can be no question as to the importance of the place the Board and their work have in respect of our national economy. It has been demonstrated that in boiler-house practice an efficiency of 80 p.ct. can be achieved, while the average efficiency is under 60 p.ct. This alone tells a tale of what can be done in connection with industry. And when it is considered that only from 20 to 25 p.ct. efficiency is obtained with the domestic grate, that a large waste ensues from the fact that fires are kept going (when heat is not actually required) in order to save relighting, that much of value in the coals so used is destroyed, and that the diaphaneity of the atmosphere is grossly violated by the emissions of the domestic chimney, there again we have an illustration of the scope for economy.

But the work of the Board, as Dr. Lander points out, is not confined to thermal efficiency, and the economies to be derived from its elevation. Thermal efficiency may be purchased at too big a price. There is economic efficiency; and economic efficiency is of national, industrial, and domestic importance. A high thermal efficiency may be realized under certain conditions by the use of expensive coal. A greater economic efficiency may be derived from the blending of a high-class and an inferior coal. The work of the Board is not, therefore, bounded by thermal efficiency, nor even by economic efficiency. It extends into the provision of home supplies of fuel oil for our Navy and the mercantile marine, of motor spirit for road and air transport, and of smokeless fuels, which work must mean the displacement or transfer for other treatment of a large proportion of the raw coal at present used in industry and for domestic purposes. The diversity of the problems supplies the reason for much of the work the Board at present have in hand, with the view to ascertain the conditions under which various classes of coal can be treated—individually and in combination; and this work must simultaneously be directive in promoting industrial fuel economy. The work means the accumulation of knowledge of the physical and chemical properties of different coals, and the devising of methods of treatment—not for separate types of coal, but for a comprehensive range of types. Ultimate economy would not be served by confining processes to a coal having an individuality of its own in respect of physical and chemical characteristics. The blending of coals and briquetting by pre-heating and pressure are directed not only to that end, but to carbonization at low temperatures (up to 600° C.), for the dual purpose of providing home-made fuel oil and a smokeless fuel for domestic and industrial purposes. There is interesting information given in the paper regarding this; and it was one of the subjects of a special article in our issue for Oct. 17, which gave an account of a visit to the Fuel Research Station.

This brings us to another point; and we should like to submit a question. The Board are at present devoting themselves and their work largely to the low-temperature carbonization process; and it would be interesting to know if, prior to doing this, a preliminary survey of the position has been made to ascertain whether or not there can be a better co-ordination of objects and utilization of products between the carbonizing industries, with the view of obtaining a maximum efficiency and economy from the processes and products. It might even be that, from the economic point of view, apart from oil production, there is little call for the low-temperature system. In one part of his paper, Dr. Lander refers to the structure of coke and the factors which affect its combustibility as constituting a question of some moment. The work of Sir George Beilby, Sutcliffe and Evans, and Illingworth has proved that coke structure has an important bearing upon combustibility, and that a free-burning coke can be obtained which is almost denuded of volatile matter. In view of this, among the possibilities, it may be that there will be developments in connection with high-temperature carbonization which will bring on to the market a coke with physical characteristics which will enable it to be free-burning. If this should happen, having regard to the trading position of the gas industry and the location of gas-works, that coke might be marketed at a cheaper rate than the low-temperature product, and then the bulk of the costs of the low-tem-

perature process would fall upon what might then become the primary product—the oil. The coke would have to be sold at a competitive price; and the gas would not have a large market value, seeing that there is only 3000 to 4000 c.ft. of it per ton of a calorific value of 800 to 1000 B Th.U. Dr. Lander tells us in his paper that the National Federation of Iron and Steel Manufacturers propose to investigate this question of coke structure, as it is believed it will have an important bearing upon blast-furnace and other metallurgical operations; and they have sought the co-operation of the Fuel Research Board in the matter. If for those purposes, why not an investigation for domestic uses? Dr. Lander himself admits that improvements in coke structure would have an important bearing upon the question of the provision of a household smokeless fuel. Manufacturing economy would, of course, be a factor for consideration in relation to the existing high-temperature methods of dealing with the coal to be carbonized. It is certain that, before the gas industry will welcome low-temperature carbonization as part of its manufacturing processes, it will want to know something more as to what can be done in regard to producing coke of good combustibility through a change in structure, and not only information upon that, but upon other points.

That is one aspect of the matter in which it seems to us that, before engaging in piecemeal research, a proper perspective is needed in an effort to correlate the carbonizing industries and their products. The same applies to the coke-oven industry. Its primary product is metallurgical coke, and its activities are completely limited by the demand for it; but the economy and efficiency of the process would be greatly enhanced if there could be a better disposal of the gas for town use by (where necessary) its long-distance transmission, if this did not make the gas uneconomical for town-gas suppliers. There are many matters that require investigation instead of immediately concentrating upon the production of fuel oil. Another of those matters is the probable effect upon the low-temperature (or other) coke market of the growth of the use of gas as a fuel—the only one which saves domestic labour. The gas industry to-day stands in a much better position—thanks largely to the Fuel Research Board—to create a balance in its products by gasifying part of its own coke, or by adopting a complete coal-gasification process of a description which would enable both tar and ammonia to be recovered. We are not by any means anticipating that all domestic grates constructed for the use of solid fuel will be converted to gas-fires; nor are we expecting a revolution in this respect. Any change will come gradually. By such means it is difficult to see how the balance of products will be upset.

To return to the subject mentioned in the first paragraph. The President of the Association (Mr. John Brass), in opening the discussion, made the remark that from Dr. Lander's paper it would appear that the fortunes of the colliery owners (if they had any) came not from the coal that was profitably used, but from what went up the chimney in the form of unconsumed fuel. That is partially true; it is also true that, in domestic heating, a great deal of fuel is wasted by the necessity for maintaining coal fires when not actually required. We revert to the point, in concluding this article, in order to direct the attention of those interested to the valuable information on the subject contained in a paper by Dr. Hartley, from which we gave some extracts in "THE GAS SALESMAN" last week [p. 10].

Interesting Facts from Horseferry Road.

A GAS undertaking is strong that has working within it an administrative body, officials and staff, and men and boys who are animated by goodwill, and have a live interest in its fortunes. When an undertaking is strong not only internally, but in the services it renders, and so is highly successful, one may be sure that there will be many who will endeavour to undermine the success by trying to make inroads into its business, or by attempting to place upon it injurious restrictions. Competition is good in connection with all commercial undertakings. It sharpens the wits of men; and it raises the standards of service. The standard of yesterday is not the standard of to-day. That is the case in the gas industry, which is thoroughly used to competition, and is more keen to-day in its resistance to it than it ever was—to the discomfiture of its rivals. And as to those others who would limit the potentialities of the industry in public service, their cases, as a rule, are so transparent that there is no difficulty in seeing both the motives and the effects; and so now they have greater difficulty than aforetimes in gaining their ends. These points are well illustrated by the address which the Governor of the Gas Light and Coke Company delivered to the proprietors at their annual meeting last Friday.

We can freely give the electricity industry credit for carrying on a trading competition with considerable acumen, but mixed in some instances with much foolishness. Evidence of the latter is the persistent palaver that is met with which suggests that gas is obsolescent, or is on the high road to being finally extinguished, through the superiority of its electrical rival. But it must be a bitter pill for those who disseminate such nonsense to find the unbelief that there is among the public, as expressed by their continued large and increasing patronage of gas, and as exemplified by the hard facts incorporated in the address of the Governor—facts as to the increase of the Company's business in an area in which competition is perhaps more keen, and has greater opportunities, than in any other quarter, and in regard to that highly important question of the utilization of coal in relation to the service rendered. In the first place, the Company's business in therms last year advanced by 5 p.ct., following an increase of 3 p.ct. in 1922. These percentages standing alone may not appear to be large. The Governor pointed to a reason for this. It is that the greater a business grows, the more difficult it is to keep up the same percentage of increase. This being so, in our opinion it would be more satisfactory to quote increases quantitatively as well as in terms of percentages, because it would show that a 5 p.ct. increase to-day is considerably more than a 5 p.ct. increase in years gone by. A 5 p.ct. increase on 160 million therms is 8 millions; a 5 p.ct. increase on 100 million therms is 5 millions. The percentages are the same; but the actual volume of business is 3 million therms more. With such an increase as 5 p.ct. now represents in the volume of business, and an addition in a year of 11,000 consumers and 67,000 stoves sold and let on hire, the Company's business, as the Governor says, shows no sign of decrepitude; and it is not likely to when one considers the sure foundations of raw material utilization and the manifold services of the products upon which the concern stands to-day. What is true of the Gas Light and Coke Company is also true of the remainder of the industry.

This brings us to a matter which may be quoted practically *in extenso* from the Governor's speech, because it will be well worth using in addresses from the chairmen of other gas undertakings throughout the country. It is that the Gas Light and Coke Company alone produce in a year approximately as much energy—light, heat, and power—as is produced in the form of electricity by the whole of the electricity undertakings of Great Britain. We are of the same opinion as the Governor, that this fact will cause a great deal of astonishment to people in the electrical world, as well as to many persons in the gas profession. To this has to be added another important point. It is that if the Gas Light and Coke Company were to be swept out of existence, and be replaced by an electricity undertaking, the latter would require to use at least 3 million tons of coal, instead of the 2 million which the Company now carbonize, and from which they obtain not only the energy to which the Governor alluded, but 1¼ million tons of coke and breeze, 19 to 20 million gallons of tar, and a large quantity of ammonia. These are facts for the electrical engineers to contest if they can. But we submit that, if the Governor is correct in his estimate as to there being an equality in the energy supplied as between the Gas Light Company and the whole of the electricity supply undertakings of Great Britain, the position is actually worse for electricity than he describes, inasmuch as those undertakings completely consume some 7 million tons (or more) of solid fuel a year, apart from the oil which several of the smaller undertakings employ in Diesel engine sets. The 3 million tons is a conservative estimate; it must be based upon a highly efficient expenditure of fuel per KW.-hour generated. Anyway, however generous the Governor was in his computation, and while it gives more than full credit to the electricity industry, it illustrates a fundamental difference between the two industries which renders it impossible for the younger one to disestablish its predecessor, which, like a famous whisky, "is still going strong," but is performing an inestimably greater service to the community. In saying all this, there is ready and frank acknowledgment that electricity has many uses; but economically there are limits

to the applications, which are seriously felt by the industry in its efforts to break new ground.

Then there is that recent instance of an attempt on the part of chemical manufacturers to limit, through the Law Courts, the Company from manufacturing, and so supplying themselves with, a chemical which is required by them in the development of one of their secondary products. Caustic soda is the substance; and it is needed in the production of beta-naphthol. The issue raised is an important one for the gas industry; and had the case gone against the Company, it is perfectly obvious that it would have governed many other things, and closed many openings to economy in the conduct of the business of large gas undertakings. That statutory control should be a bar to an undertaking conducting its business in a manner most beneficial to its consumers, and that this bar should be set up in favour of private enterprise which is under no control in respect of its activities, is a proposition which no amount of twisting of common sense will sustain. While the case and its issue are most important, they are only illustrative of the efforts that are repeatedly being made to impose restriction upon the industry. The chemical manufacturers and the railway companies are frequently busy in this work of attempting to limit the industry's operations; the patent fuel makers, too, were trying not long since to draw in the market bounds for pitch, in order that they might reap the advantages of a larger supply at a lower price for the manufacture of their commodity. An industry such as that of gas supply, with a large diversity of activity and of markets, must, of course, expect to be the subject of envy and uncharitableness on the part of those with interests that are affected by its operations. But these and countless other matters constantly intrude into the comfortable administration of business. Those responsible for such undertakings never know in the morning what fresh problem will present itself for solution during the day. But there has been during many years no failure on the part of the industry to meet succeeding problems, and to fight in defence of its own interests; and the interests of the gas industry are those of the public.

There were many other matters in the Governor's address which are of interest—such as the revision of the standard price, and the relation of the present charge for gas to the increased costs of production. Regarding the former, and the fixing of the standard price at 11d. per therm, we had hoped to hear from the Governor something on the subject of the Company's contention (to our mind a correct one) that an allowance should be made in the standard therm price for economies effected through skill in management—economies not due to circumstances outside the Company's control, such as market costs and rates and taxes. When a Company can point to the fact that the price of gas is less than 50 p.ct. more than the pre-war charge, with costs of materials standing at 100 p.ct. and more above pre-war ones, and that the cost of living is 75 p.ct. more than pre-war, it shows that there have been internal changes which have enabled the public to be served with gas at a price which does not reflect the higher costs that are being paid for materials, labour, rates and taxes, &c. Another point is that the expansion of the gas business is helping employment, and beyond this the Company are forwarding work in order to contribute to the relief of unemployment. The Governor, who knows well all the details, referred with satisfaction to the amendment of the agreement governing wages in the gas industry; in his opinion, it will be of mutual benefit. Further, he has no ground for dissatisfaction, but every reason for satisfaction, with the Company's scheme of co-partnership, which gives the co-partners a bonus at a similar rate to that of the dividend on the ordinary stock. His experience is that this plan has produced a genuine feeling of mutual interest among the Company's workers; and he sees no reason why a similar scheme should not be adopted in several other industries. This view is shared by many others. It is a pity that the pacific state existing in the gas industry does not make a stronger appeal in quarters where the contrary is almost constantly in evidence.

The Year's Trading in South London.

THE proprietors of the South Metropolitan Gas Company will have perused the report for the past year of the Chairman (Dr. Charles Carpenter) and his colleagues with considerable satisfaction; and those who are able to place a proper valuation on the figures in the accounts will have seen in them progress all along the line, and a substantial solidification of their interests. The policy of the Company is to raise the standards of work and service from coal purchasing right away to the consumers' burners; for this is the policy they believe, and know, is the best for promoting and defending the business. The present report is no exception to previous ones in supplying indications of this policy and of its soundness. In a reference to coal, it is urged that, in the interests of all industries, it is important that every possible endeavour should be made to produce coal at a lower price, and with greater freedom from impurities. We need not elaborate this point in these columns. The importance is recognized by all who study industrial economies and efficiencies; but what we do wish is that the constant pleas for cheaper coal and coal of greater purity would have effective results. In the accounts, too, there is good confirmation of the statement in the report that carbonizing results continue to improve, and the yields of gas, tar, and ammonia are better. This is largely due to the technical control that is exercised on the works. Passing out to the district, there is a reference in the report to the increasing recognition of the important part played by gas undertakings in the improvement of the atmosphere of large cities and in the elimination of smoke pollution. This is emphasized by mention of the extension of the consumption of gas during the past year, and by an increase in the number of consumers and in the gas appliances used by them. The increase of gas consumption was unquestionably aided by the lower prices charged, which made an immense difference in the total to the pockets of the consumers, and has contributed to the reduction of the cost of living.

We will only refer as evidence of the improved manufacturing results to the outstanding features of coal carbonized and therms made. In the year 1,228,806 tons of coal were carbonized, or an increase of 3764 tons. The number of therms produced was 88,673,406. But as 160,579 therms were purchased from the Fuel Research Station, the net production from the coal carbonized was 88,512,827 therms; and this make is equal to 72·03 therms per ton of coal carbonized. In 1922, deducting 56,255 therms purchased from the Fuel Research Station, the net production was 86,544,896 therms from 1,225,042 tons of coal, which was equal to 70·6 therms per ton. In other words, last year 1·43 therms more were produced per ton of coal carbonized. The extra net therms made in the year totalled 1,967,931, though the additional quantity of coal carbonized was only 3764 tons. Had there not been this improved working, the expenditure on coal would have been substantially greater. Due to this and to the lower price per ton, the expenditure on coal was £1,750,771, or £153,019 less than in 1922, despite the increased purchase of 3764 tons. With the exception of about £4000 more spent on purification, there were reductions through all the other manufacturing items, with the result that the total sum spent in the manufacturing department—£2,638,916—was lower than in the preceding year by £202,425. The improvement in working, added to reduced costs, made a good difference to the Company and to the consumers. While alluding to the expenditure, it may be pointed out that the disbursement on distribution during the year was £814,200, or £52,189 more than in 1922. This illustrates the activity there is on the public service side of the business. The items that have gone up are repair, maintenance, and renewal of mains and service-pipes, and repair and renewal of stoves and fires, and repair and renewal of fittings. Rents, rates, and taxes (£141,632) show a welcome recession of £11,000. There is nothing specially to mention in connection with the other items on the expenditure side. The total outlay on revenue account was £4,011,797, or a reduction of £137,919; and this left a balance to be transferred to net revenue account of £530,698, or £211,205 less than in 1922, which is small when compared with the value of the concessions made during the year to the consumers.

When that difference of £211,205 in the carry-forward to net revenue account is compared with the reduction of £598,400 in the receipts for gas, although the number of therms sold was 84,057,306, or 2,716,321 more, it will be seen that the consumers have good cause to be thankful for both their share in the co-partnership and for politic management. The prices per therm that were charged in 1922 were 11½d. and 10d., while last year the price was first 9d., then 8½d., and finally 8d.; and it was through this that the revenue from gas fell from £3,459,633 in 1922 to £2,861,233 in 1923—a difference (as already mentioned) of £598,400,

notwithstanding the increased sales. Another evidence of expanding business is found in the rents for meters, stoves, and fittings—£378,011, compared with £360,116. All along the line of secondary products—coke, tar and products, ammonia and products—there was a remarkably good showing last year; the total revenue from these sources being £1,298,283, or an increase of £231,135. Coke and tar were particularly energetic in contributing this higher return. Coke, in yielding £832,258, exceeded its product of 1922 by £72,923; while tar and its derivatives, in making £339,312, yielded more by £145,338. The total revenue was £4,542,496, compared with £4,891,619 in the preceding year, which is a small difference, having regard to the value of the benefits distributed among the consumers in the shape of price reductions.

These are accounts with which Dr. Carpenter will be glad to face the proprietors at their annual meeting. Most gas undertakings are far from trading on the same terms as in pre-war days; but there is a nearer approach now to them than during the past few years, and a good proportion of this is due to internal progress in those things which (apart from market costs) contribute to more economical working per unit of business done. The year's profit permits the Board, after deducting debenture interest and other fixed charges, to recommend dividends at the rate of 5 p.ct. per annum on the preference stock and 5¾ p.ct. on the ordinary stock, less the interim dividends already paid, together with the allocation of £16,500 to the reserve fund, which was heavily depleted owing to the war. The balance carried forward will be increased by £19,524.

Strikes—Past and Threatened.

We were able in last week's issue to announce the fortunate ending of the strike of railway locomotive men. There was no question that, though there was great inconvenience throughout the country, the strike had failed. Public opinion was strongly against the men in their refusal to accept the decisions of the tribunal specially appointed to consider and arbitrate upon any disputes arising in connection with the railway systems. Moreover, many of the men who had gone out on strike had returned to work; and there was no indication of the railway managers doing other than remaining firm in their adherence to the decisions of the National Wages Board. It was perfectly obvious that the longer the strike continued, the more the Union responsible for it would suffer, both in funds and reputation. Mr. Bromley and his colleagues no doubt enjoyed being in the limelight for a space, but in the public estimation they stand on a lower level than they did before this stupendous blunder was committed by them. The whole thing was wrong from the start; and it was badly engineered.

There is nothing in the settlement which could not have been gained without going to the length of a strike, and causing the country to lose millions of pounds. As a matter of fact, the offer that the railway managers made on Jan. 19 would have given the enginemen in essence all they have received. In substance, the settlement upholds the award of the National Wages Board. The cardinal feature in the dispute was the question of the payment by mileage. The decision of the Board on this point was that a normal day's work should be raised from 120 to 150 miles. That has been accepted; but the 150 miles is now to be brought into operation by three stages within a year. A concession that the men receive is that an hour's work shall not be raised to 20 miles, but shall remain at 15 miles. Several minor details are dealt with in the settlement; but nothing has been gained by the men that could not have been realized without recourse to the crude method of calling a strike. However, though the public were strongly on the side of the railway managers in adhering to the decisions of the machinery appointed to determine such issues, there was general rejoicing when normal passenger and goods traffic was restored. We will give the men their due. Once they had the command, there was no reluctance to return to work, and get things in running order again.

But from one labour trouble to another. From the railway strike, attention was immediately diverted to the resolve of the dock labourers to cease work on Feb. 16, unless concessions were made to them. This is a serious matter; and it involves several important unions. The principal demands are that wages shall be increased by 2s. a day, that there shall be a proportionate increase for piecework, and that there shall be a guaranteed week. Nothing but national negotiation and settlement will satisfy; and therefore all docks, and all work depending upon them, will be affected unless there is a settlement. We cannot enter into the details of the dispute; but it is understood that the claims of the men are to be the subject of a thorough investigation by the employers. There is not much time for this, in view of the threat to cease work on the 16th inst.

Quick Work.

There seems to be a disposition among gas companies to hurry up the preparation of their accounts, and the holding of their annual meetings. The proprietors will appreciate this. We and our readers may not do so, if the meetings get bunched up together, and have to be reported in only two or three issues. Anyway it is not part of our functions to control these matters, and so we will do our duty, as always, by prompt service. So far, there is nothing onerous about the movement; we are only wondering whether it is likely to develop to any large extent. It is, of course, only natural that share and stock holders, mostly meeting now only once a year, should be anxious to have as early as possible the accounts in their hands, and to see and hear as to the prospects of the businesses in which they have invested their money. The Gas Light and Coke Company, large as it is, have already issued their accounts and held their annual meeting; and the report of the proceedings appears in this issue. The Aldershot Gas, Water, and District Lighting Company beat them by a day in holding their meeting. To enable these things to be done, there has been smart work on the part of the Companies' secretarial and accountancy departments, which must be extremely well organized. There are two points in the Aldershot meeting (which is also reported to-day) to which attention may be drawn. One is that the Chairman (Mr. R. W. Edwards) believes that the Company is the only one supplying gas, water, and electricity. If there are others, we are not aware of them. The other point is that the Chairman stated that the sales of electricity increased last year by no less than 93·5 p.ct. The percentage increase for gas would look shabby in comparison; and this is one reason why we hold that quantities should be quoted as well as percentages. Another reason is found in the editorial comment on the Gas Light and Coke Company's meeting.

Petroleum Imports.

The returns for last year as to our petroleum import trade show an expanding business, but declining values. During the year no less than 1,326,484,801 gallons of petroleum products were received; the value being £34,973,777. These figures compared with 1922 represent a gain in quantity of upwards of 113 million gallons, and a decline in value of nearly £5,000,000. Of the total imports, gas oil accounted for 70,746,090 gallons, contrasted with 70,153,258 gallons in 1922. Illuminating oil exhibited a decrease—145,191,458 gallons, as against 152,537,292 gallons. Motor spirit made a record, with 327,233,670 gallons, compared with 311,190,222 gallons. The quantity of fuel oil was 363,738,123 gallons, as against 392,618,470 gallons. Crude oil was received to the amount of 334,617,596 gallons, compared with 217,133,915 gallons. Lubricating oil and "other products" made up the total import in 1923 of 1,326,484,801 gallons, and in the previous year of 1,213,108,362 gallons. The value of the gas oil imported last year (as given above) was £1,085,447, compared with £1,164,433. These figures respectively average 3·68d. and 3·98d. per gallon.

Motor Spirit Prices.

Motorists were considerably startled last Saturday morning when they found that the price of benzole had risen by 4½d. per gallon. They were told that prices would have been advanced before had it not been for the railway strike; inasmuch as the production boom in America has fallen-off, and prices of crude oil and petrol in that country have increased immensely during the past two months. The record import of motor spirit last year, referred to in the preceding paragraph, of 327,233,670 gallons does not represent the full consumption of petrol in this country. There are the enormous quantities produced by the National Oil Refineries, Ltd., at Llandarcy from Persian crude oil. The "Petroleum Times" estimates that the consumption of motor spirit in this country is now well over 400 million gallons. However, it is said that demand has now overtaken the supply;

and the increased price is an inevitable consequence. However that may be, it may help to revise ideas in regard to increasing the output of benzole.

Smokeless Cities and Central Control.

So far as London is concerned, centralization of control is necessary for the purpose of bringing about an abatement of smoke. The main reason for this is that the air has no administrative bounds; and if one local authority is particular over the regulation of industrial smoke, its next door neighbour may not be, and smoke migrates in the direction the wind is travelling. Thus in a borough where efforts are made to diminish the evil, they may be nullified by the disregard of it in a neighbouring borough. The point is made, and a plea advanced for central control, by Dr. H. A. Des Vœux in a letter to "The Times." He says the London County Council can only move in default of action by the borough council concerned; and so the wheels of progress are closed. London air, he holds, should be cleansed of politics, and placed in charge of the County Council, whose hands should be strengthened by Parliament. If London air were as clear of smoke particles as it can be made, there is no doubt the effect would so strike the imagination that other cities and towns would be forced by public opinion to follow suit.

Railway Wagon Hire Rates.

In the annual report of the North of England Coal Traders' Association, reference is made to the subject of wagon hire for coal, coke, and patent fuel. In November last a circular was addressed to the members suggesting that in case a member had reduced his rates for wagon hire, he should revert to the rates operative prior to August last—*i.e.*, a basis of 100 p.ct. on pre-war rates. Many traders signified their willingness to do this; and many more had never reduced their charges. The hope is expressed in the report that wagon-hire rates will shortly be uniform both as regards traders and collieries, on the pre-August basis, as it is impossible to run wagons without suffering substantial loss at the rates now in operation so far as the railway companies are concerned. The present cost of repairs and maintenance is too high to enable this to be done.

The Eight-Hour Day.

There is a tendency in various countries towards the revision of the hours of labour, and to a better definition of those hours. In Belgium, a group of deputies have introduced a Bill for the amendment of the existing Eight-Hour Act in the direction, among others, of limiting the restriction to hours of actual work—that is to say, to make the eight hours apply to actual work. In Germany, the eight-hour day remains in principle; but provision is made for exceptions in some industries. In the Ruhr, a prolongation of the hours of work is already in operation, or is on the point of acceptance, despite some opposition by the workers. British coal miners are not prepared to abandon their seven-hour day, though it would be good for the country, the coal industry, and their own pockets.

Miners' Wages Agreement.

An interesting point has come to light regarding the ballot of the miners over the notice to terminate the wages agreement. According to the "Board of Trade Journal," during the first week in January, there were employed in the mines 1,175,800 persons. The statement issued by the Miners' Federation showed that the number of votes cast was 624,861, or 53 p.ct. of the number employed. This leaves 550,939 persons, or 47 p.ct., to be accounted for by juveniles, non-membership of the Federation, or abstentions. It is a large proportion.

Miners' Wages and Coal Output.

There has been a great deal of discussion regarding the question of the payment to the miners of a wage equivalent to their earnings in 1914, allowing for the increase in the cost of living. Notice has been given to terminate the wages agreement on the ground, essentially, that it has not provided the miners with wages on the above basis; and the claim is put forward by the miners' leaders that this could have been accomplished under nationalization. The assumption therefore is that had there only been two parties concerned in the coal-mining industry—the nation and the miners—the miners would have undertaken to supply the nation with an output of coal equivalent to that of 1914 in return for wages equivalent to those earned in 1914 *plus* the increased cost of living. That is to say, on the basis of the 1914 output of 265·6 million tons, the 1914 wages bill of £82·9 millions, and an average cost-of-living index figure of 82 for the period of the agreement, the Miners' Federation would have undertaken to provide an average of 22·1 million tons of coal per month, at a wages cost of 11s. 4¼d. per ton. What has happened? During the currency of the agreement—the 25 months from October, 1921, to October, 1923, inclusive, for which figures are available—there have actually been raised 513 million tons of coal, or an average of only 20·5 million tons per month, for which the miners have received in wages £289·6 millions, or 11s. 3¼d. per ton. It would not appear therefore that, on their own assumption, the miners have any cause for complaint in the total of the wages bill. Rather would the nation have had ground for remonstrance had such a bargain been made, since the miners would have failed by 1·6 million tons per month to produce the output contracted for.

More Men, Less Coal.

The situation, in fact, is another example of the results in practice of the Labour theory that one man, by working less efficiently, can provide work for another man. During 1923 an average of 50,000 more men were employed in the mines than in 1913. Yet 9 million tons less coal were produced. Nevertheless, for the first ten months of 1923, a sum of £120·8 millions was actually paid in wages by the owners, which is at the rate of £144·96 millions per annum—an increase of 74·9 p.ct. over the total wages bill of 1914. And during the year 1923, the average cost-of-living index figure was 73·6.

PERSONAL.

At the annual meeting of the Halifax Chamber of Commerce, held on the 30th ult., Mr. J. W. BROADHEAD, M.I.Mech.E., was elected Vice-President for the ensuing two years.

Mr. A. J. NEWHAM, for 46 years rental clerk in the Birmingham Corporation Gas Department, has been presented by Alderman Lloyd (the Chairman of the Gas Committee) with an illuminated address expressing appreciation of his services.

OBITUARY.

"HARRY" SOMERSON FREEMAN, M.Inst.C.E.

A TRIBUTE BY MR. H. E. JONES.

At the age of 82 years, there was gathered to his fathers, in the early hours of Jan. 22, at his lovely garden house near Redhill, a very brave gentleman, a great sportsman and athlete, my boyhood's best friend, and most grievous loss in my old age. A year older, while a schoolboy, he won my attachment by his charm of manner and disposition, and his modest efficiency in playground sports. A sound cricketer, he "played the game" for seventy years in every department of life—business and leisure—winning the esteem and affection of all around him, never making an enemy or failing in goodwill. From his pupilage under my father, he went to the Bombay Gas Company, to help Mr. Thos. Proud for five years. He then followed me as Engineer, in 1869, to the then Wandsworth Gas Company, which he served as Engineer and Consulting Engineer for nearly thirty years, when he became a Director for nearly twenty-five years.

To him must be attributed the spade work and the wise policy under which this undertaking has reached a conspicuous distinction, with its fine modern works, with half-a-mile of Thames frontage, its fleet of sea-going steamers, and its low price for gas. During most of his time as Engineer, he served under his old teacher, Mr. Robert Jones, M.Inst.C.E., who was the Deputy Chairman and much relied on by Dr. T. S. Howell, the Chairman for 44 years, whose father, Dr. James Howell, founded the Company.

I have said he was a great athlete. I saw him at 28 swim for an all-England race from Putney to Hammersmith, coming in second. He won so many sculling and rowing cups that they fill a wardrobe, but he never spoke of or displayed them. In the hunting fields of Surrey and Essex, he avoided "the gap of deception" and "the hand gate of guile," going ever straight, as in business. Handsome prizes attest his proficiency in tennis and golf. Never jealous, always cheery, pleasant, and courteous, he was ever a very brave and high-class gentleman—would we had more like him, for he leaves a sore gap to

Yours obediently,

H. E. JONES.

ELECTRICITY SUPPLY MEMORANDA.

THE electrical contractors of the country are of the opinion that they are not getting all they should in the way of work, and therefore profit. But at the annual dinner of the Electrical Contractors' Association, all the guests who spoke appeared to try to put them into better spirits and heart (probably as some compensation for a good dinner) by pointing to the wonderful prospects that are before them. There was Sir John Snell, for example, chief of the Electricity Commissioners, who bade them not to be downhearted, because, according to surveys made by supply engineers locally, in the next decade the supply of electrical energy will be nearly trebled. We do not gather from the reports that the contractors present cheered the statement—gladly or ironically. Prophets have not honour in their own country; and what the supply engineers foreshadow may be the subject of more than a little scepticism by the contractors. However, last year, Sir John says, the actual sales of electrical energy were 4700 million KW.-hours; and the total output for public utilities was 6700 million KW.-hours. The progress of the past cannot always be taken as the criterion of progress in the future. In many ways there are limitations; and new custom is not always of the same material order as the old. Another remark made by Sir John was that since their appointment the Electricity Commissioners have dealt with 1700 applications for loan sanctions, representing £44,000,000, which in his opinion must mean a good deal of work for the contractors. The Commissioners were not brought into being yesterday; they have had a working life of four to five years, and the applications for loans cover that period. The contractors obviously have not felt much effect from the loans so far; otherwise they would not be complaining of the slackness of business, and the lean pickings they are getting out of the industry. But still Sir John says: "Do not be downhearted." Perhaps we shall see the contractors smiling, because of the forecast of prosperity. But they would no doubt prefer that the load of prosperity should show a fairly level line rather than have peaks and long, deep valleys in it.

Looking Forward.

The President of the Association (Mr. Robert Robson) gave the members a little advice. Whether they will altogether appreciate it, we cannot say. He stated that it was the duty of the members to educate the public in the use of electricity, and in their own showroom to bring electrical apparatus to the notice of the public. From a business point of view, this is unquestionably a very proper thing to do. Everything in that way helps. It is, however, more the duty of the electricity supply undertakings than of the contractors to educate the public, though as they want to sell, wire, and fix as much apparatus as possible, the latter should participate in the work. It is all a matter of co-operation. But in the electricity industry, there seems to be considerable jealousy between the electricity suppliers and the contractors. The latter are of opinion that the former are trespassing on what should be their preserves; and the former think that, if they depended for progress upon what the contractors do, the headway would not be of much account. Each believes the other is not doing a fair share of work among the public; and so things are not altogether as happy as they should be. The work of the Electrical Development Association and of the supplying undertakings and the contractors combined, does not seem to be so effective as the participators in the results would like it to be. Mr. Robson asserts that the electricity industry is only touching the fringe of possible development; and there is tremendous scope for it. Such remarks are only commonplaces; and, instead of indulging in them, if there is any ground for thinking that the development is not so fast as it should be, it would be far better to institute an inquiry to ascertain what are the causes retarding the expansion which so many electrical men say is possible, but which does not materialize. Such an inquiry should precede everything else; and there would be little reason for hiding the conclusions, in the same way that attempts are made to hide the troubles with electrical appliances. The public evidently have reason for giving their patronage elsewhere. Mr. Robson is of opinion that something might be done if supply engineers and contractors got together, and discussed measures for development. If a big development could be obtained by concerted methods, his view is that the demand for electricity would be so large that suppliers would be too busy to give attention to wiring. Thus the field for the latter would be at the untrammelled disposal of the contractors. We are not anticipating anything of the kind. The municipal electricity suppliers have been invested with hiring powers; and they are not likely to forego any of their authorization in a business to obtain which they have fought so hard. There is just the chance that, from the contractors' point of view, the electricity suppliers may be stubborn. If they are, Mr. Robson's advice is that steps should be taken to secure the election of members of the Association on the local councils; and this would enable them to do something to stop municipal trading. That is doubtful. Two or three such members would not be looked upon as disinterested parties; and their votes (their influence might be greater) would not go far against those of the remaining members of the local governing body. The maximum development is not to be secured by placing a limitation upon the efforts of any one party. It may be added that, despite current complaints on the part of the contractors, Sir John Snell stated at the dinner that the electrical industry is the "most live" one in the country to-day. We admit the energy it is displaying; but we are at the same time conscious of the fact that the gas industry is very much alive in these times; and its liveliness, instead of abating, shows signs of increasing.

Contractors' Strategy.

The way some contractors view the business methods of electricity suppliers is well illustrated by a letter from "A Northern Contractor," which appeared in a recent issue of the "Electrical Review." The letter is full of sarcasm generated by the correspondent's own experience. It appears that some years ago this contractor equipped his house with many electric appliances; but as the supply authority restricted the use of current, it became necessary also to instal gas apparatus. In his view, this was fortunate, for gas, he says, makes an excellent stand-by when the current fails—usually on Sunday mornings. "When the current fails" is unkind. Most people, too, find gas is an agent with merits which justify its general use; and they do not regard it merely as a stand-by to electricity. We have known cases where electric cookers have been introduced, and gas-cookers retained; and the latter have gradually been restored to full use, after experience with electrical operation. However, in the case of this "Northern Contractor," the charge for current is 7d. per unit for lighting, and 3d. per unit for power, *plus* 36s. per annum rent for two meters. Mentioning this, he remarks that, should customers compare the 3s. per 1000 c.ft. charged for gas, and the 9s. per annum rental for the meters, doubtless "the affable and helpful representative of the electricity supply undertaking would be safer with a life preserver in his meagre tool kit." There is a fund of meaning in those words, which many representatives of electricity supply undertakings will well appreciate. It seems that the writer is one of those contractors who have invested money in a showroom; and he holds that it is not the fault of the contractors that better progress is not being made. In his view, cheap current only will develop the use of electricity and electric appliances—just as readily as dear current has brought the apparatus into discredit when compared with other methods. That is a point upon which we should join issue with the "Northern Contractor." Cheap current, of course, is an essential; but it is not the only thing that is requisite to develop the domestic use of electricity. A greater cheapness is wanted all along the line, together with more reliability, a much higher efficiency of cooker hotplates and other appliances, and a potential heating value more consistent with the prices charged for other agents.

A Contractor's Sarcasm.

The Electricity Committee of the St. Marylebone Borough Council are proposing to carry out "free" wiring in blocks of dwellings in Wharncliffe Gardens. We gather from the "Electrical Times" that in this property there are 180 two-room tenements, 180 three-room, and 180 four-room. A complete canvass resulted in replies from 169 tenants who were favourable to the installation of lighting only, and 109 tenants who were in favour of the provision of electric heating and (or) cooking, as well as lighting. The Council have been considering tenders for the wiring work to be carried out in the first block. In August last they had before them estimates for lighting only, in view of the fact that a previous canvass of this and other properties was not very encouraging to the inclusion of heating and cooking. But the Committee now see possibilities of developments; and therefore deemed it advisable to invite tenders for wiring the tenements in accordance with the results of the new canvass. It seems that some thirteen tenders were received, ranging from £2472 18s. up to £4689, for wiring the staircases and tenements. These figures—the lowest tender being little more than half of the highest—show what a large difference in prices there is for wiring at the present day, as we take it the tenders were based on the same specification. Information is supplied that some indication of the value of the heating and cooking business in this class of property is afforded by eleven consumers at Crawford Place dwellings who used 13,657 units of electricity during the year ended September last; and these are reported to be quite satisfied with the service. This does not appear to be very lucrative business, seeing that the average consumption of the consumers for heating and cooking is only 1242 units per annum. This suggests that a very small amount of heating and cooking was required by them in the twelve months.

A "Free" Wiring Canvass.

The reports in the newspapers regarding the recent fire at the Clacton Electricity Works suggested that it might be some six months before the consumers would again receive a full supply of electricity; but this appears to have been an exaggerated time estimate. The Electrical Engineer has reported on the matter to the District Council; and he states that on the second Sunday following the fire it was found possible to resume a partial supply to the town, and since then there has been a further improvement. It appears that all the recording instruments on the switchboard were destroyed; and therefore temporary connections had to be made to restore the supply. It is hoped that within five weeks or so the new switchboard will be completed.

The Clacton Fire.

Until then it is impossible to give a continuous supply for twenty-four hours; and meanwhile the supply is being shut off at midnight. This is, in the circumstances, all very satisfactory; and it shows the energy with which the Engineer attacked the great difficulties with which he was suddenly confronted. But naturally he still finds it very difficult to carry on; and it may be necessary to interrupt the supply. If so, it will be restored with the least possible delay.

Shop Window Lighting. Gas men are interested in seeing the latest modes of their competitors in connection with the applications of electricity. Anyway those interested should make an inspection of the complete model shop window the General Electric Company, Ltd., have installed in their main showrooms at Magnet House, Kingsway. This has been equipped with the latest scientific shop window lighting devices, in order to demonstrate the "Geccray" system of shop window lighting. The equipment of the window is very complete, a double bank of "Geccray" mirrored glass reflectors having been installed with switches, to enable both ordinary and colour light effects, daylight effects with Osram gasfilled daylight lamps, spot lighting, and flood lighting to be demonstrated with the greatest ease. It is understood that contractors, architects, and others interested in shop window lighting problems are always welcome; and the illuminating engineers of the Company are willing to give special demonstrations to any inquirer. This wide invitation must surely include gas men, who are equally concerned with electricians in producing improvements in application. Good lighting in shop windows is an excellent salesman.

Per Head of Population. Consumption per head of the population is a useful figure to indicate progress in the supply of either gas or electricity. In a lecture before the local section of the Institution of Junior Engineers, Mr. S. L. Pearce, the Engineer of the Manchester Corporation Electricity Department, made some interesting comparisons as to the extent to which electric power has been developed in various countries. The United Kingdom is at the bottom of the list. The number of units of electricity consumed per head of the population by Switzerland is 700; by Canada, 612; by Norway, 493; by the United States, 472; by Sweden, 364; by France, 147; and by the United Kingdom, 139. Though the figure for the whole country is 139, that for Manchester is 235. The countries most richly endowed with water-power are naturally the ones which have made the greatest use of electricity.

Grievances Regarding Charges. There is an incipient movement for the reduction of electric light prices. It commenced with certain of the London Companies, who are still charging rates considerably higher than their neighbours. Of course, one cannot compare one concern with another, and arrive at a definite conclusion that the charges of one of the two are exorbitant. There are frequently to be found internal differences which warrant a higher price in one case than in another, though it is difficult for laymen to appreciate this fact. Nevertheless, there appears to be a case for inquiry at any rate in respect of the County of London Electric Supply Company and the Charing Cross (West-end and City) Electricity Supply Company, who are paying dividends which make the mouths water of some people who are not so fortunate. So far as the City is concerned, the matter has been before the ratepayers; and a petition was recently sent to the Corporation asking them to move in trying to secure a reduction. At a recent meeting they decided to do so. The resolution that was passed was to the effect that steps should be taken forthwith to petition the Electricity Commissioners to review the power given in 1920 to the Charing Cross Company to raise their maximum price from 5d. to 8d. per unit. It was stated that the Company are paying largely increased dividends and bonuses to their shareholders, to the detriment and at the expense of those who use the electric light. It was understood, when the Company were permitted to enter the City, that 5d. per unit was to be the maximum charge. The result has been that the City is paying more for current than many other communities.

Safety! During the night of Jan. 17, Joseph Howes was killed at the Sheffield works of Messrs. Jonas & Colver. The youth had a metal rake in his hand, which came in contact with a live wire; and he received a 200-volt shock. Artificial respiration was of no avail; and on a doctor arriving, he pronounced that Howes was dead. Recently, an electrically operated laundry at Dorking was completely destroyed by fire. Last Wednesday morning, several thousand pounds of damage was caused by fire to Scarisbrick Hall, near Southport. Some of those newspaper reporters who, according to our electrical contemporaries, suffer from a superabundance of imagination, attributed the disaster to the fusing of an electric wire.

Mrs. Settle and family desire to thank their many kind friends for expressions of sympathy in their recent sad bereavement. It is very consoling indeed to them to know the high esteem in which the late Mr. Thomas Settle was held, and it will ever remain to them a precious memory.

SOUTH METROPOLITAN GAS COMPANY.

Annual Report and Accounts.

THE following is the report of the Directors of the South Metropolitan Gas Company for the year ended Dec. 31, which will be presented at the general meeting next Wednesday.

The important part played by all gas undertakings, municipal and otherwise, in the improvement of the atmosphere of large cities, and in the elimination of smoke pollution, is becoming day by day more widely recognized. An extension of gas consumption during the past twelve months was therefore not unexpected, and the Directors have pleasure in reporting that this has been accompanied in South London by an increase in the number of consumers and in the appliances used by them.

The thermal system as the basis for computing the charge for gas has emerged successfully from the inquiry before the Board of Trade Committee appointed to investigate it, and there is an undivided opinion to-day as to the absolute fairness of a method which, it is of interest to remember, this Company were the first to adopt.

Carbonizing results continue to improve, and the yields of gas, tar, and ammonia are all better. In the interests of all industries it is important that every possible endeavour should be made to produce coal at a lower price and with a greater freedom from impurities.

After deduction of debenture interest and other fixed charges, the profit on the year's working will enable dividends to be declared at the rate of 5 p.ct. per annum on the preference stock and 5¾ p.ct. on the ordinary stock, less interim dividends already paid, and the allocation of £16,500 to the reserve fund, which was heavily depleted owing to the war. The balance to be carried forward will be increased by £19,524 to £254,510.

The capital liability of the undertaking has been reduced during the year by the redemption of £147,420 5 p.ct. preference stock issued in 1917. The balance of this stock will be redeemed in December next.

The relations of the Company with their employees continue to be of the utmost cordiality, to the great advantage of the public. It seems unfortunate that the co-partnership spirit which has achieved this result is not more generally made use of in other industries, especially in those which, like this Company, supply the essential needs of the community.

Two Directors (Mr. E. Honoratus Lloyd, K.C., and Mr. John Mews, LL.D.) and one Auditor (Mr. Charles P. Crookenden, F.C.A.) retire by rotation, and, being eligible, offer themselves for re-election. Mr. Charles H. G. Belben has been elected an Employee Director in the place of Mr. Walter C. Beard.

CHARLES CARPENTER,
President.

Offices: 709, *Old Kent Road, London, S.E.* 15.
Jan. 30, 1924.

The Accounts.

The following are the principal portions of the accounts accompanying the report.

The first two statements relate to the stock and loan capital. The former states that the ordinary capital issued prior to 1916 under the Company's various Acts, on which dividend is payable, is £6,609,895; and there has been issued under the 1916 Act £102,580 of 5 p.ct. redeemable preference stock. The loan capital account shows that the loan capital, the rate of interest on which is 3 p.ct., amounts to £1,895,445; and the redeemable 6½ p.ct. loan capital to £734,000.

The third statement is the capital account, which stands at £9,319,900. The items of expenditure are as follows:

Capital account to Dec. 31, 1922		£8,731,941 18 8
Expenditure during year to Dec. 31, 1923—viz.:		
Buildings, plant, and machinery	£7,150 0 0	
Mains and services	3,874 15 10	
Meters	3,839 4 1	
Stoves and fires	5,767 16 9	
		20,631 16 8
Total expenditure		£8,752,573 15 4
Balance		567,326 4 8
Total		£9,319,900 0 0

The net revenue account shows a balance of £488,396 applicable to dividends. The balances of the reserve, renewal, and special purposes funds stood as follows on Dec. 31 last: Reserve fund, £157,140; renewal fund, £52,649; special purposes fund, £184,886.

The remaining statement is the balance-sheet, which gives the value of the stores in hand at the close of the year as follows: Coal, £303,372; coke and breeze, £11,576; tar, ammonia, and products, £230,063; and sundry plant and stores, £230,442. The figures this time last year were: Coal, £186,928; coke and breeze, £21,858; tar, ammonia, and products, £204,380; and sundry plant and stores, £244,953. A sum of £114,542, co-partnership bonus and savings, has been deposited with the Company; and the total of the superannuation and guarantee funds is £331,494.

Statement of Coal.

In Store Dec. 31, 1922.	Received during the Year.	Carbonized during the Year.	Used during the Year.	In Store Dec. 31, 1923.
Tons. 132,769	Tons. 1,305,179	Tons. 1,228,806	Tons. 1596	Tons. 207,546

Expenditure.

To Manufacture of gas—			
Coal into store, including £9020 17s. 2d. for London Port and tonnage dues	£1,750,771 8 0		
Purification	45,141 16 6		
Salaries of staff	76,455 12 4		
Wages (carbonizing)	200,048 5 2		
Repairs and maintenance of works and plant, less £13,512 5s. 5d. received for old materials	566,498 19 7		
		£2,638,916 1 7	
Co-partnership fund		66,074 4 3	
Distribution of gas—			
Repair, maintenance, and renewal of mains and service-pipes	£218,690 19 11		
Salaries of staff	102,666 5 0		
Repair and renewals of meters	117,088 4 10		
Repair and renewals of stoves and fires	210,700 4 9		
Repair and renewals of fittings	165,054 17 11		
		814,200 12 5	
Public lamps, labour and materials £59,059 6s. 1d., less £51,438 9s. 8d. received for the same		7,620 16 5	
Rents, rates, and taxes—			
Rents payable	£13,839 9 11		
Rates and taxes	127,793 5 7		
		141,632 15 6	
Management—			
Directors' allowance	£6,231 0 11		
Salaries of staff	33,524 19 1		
Collectors { Ordinary	18,060 5 2		
Collectors { Slot meter	64,302 1 8		
Stationery and printing	23,057 7 9		
General charges	49,059 14 8		
Company's Auditors	500 0 0		
		194,735 9 3	
Miscellaneous—			
Law charges	2,172 5 11		
Parliamentary charges	—		
Bad debts	3,573 17 11		
Stolen from slot meters broken open	121 4 1		
Superannuation, sick, and accident funds	73,065 5 11		
National Insurance Act charges	26,368 12 10		
Gas Referees and Official Auditor	2,316 7 8		
Special purposes fund	39,000 0 0		
Leasehold renewal fund	2,000 0 0		
		148,617 14 4	
Total expenditure		4,011,797 13 9	
Balance carried to net revenue account		530,698 17 3	
		£4,542,496 11 0	

Receipts.

Sale of gas—			
At 9d., 8½d., and 8d. per therm	£2,803,046 17 7		
Public lighting	58,186 3 10		
		£2,861,233 1 5	
Rents—			
Meters	£120,335 4 7		
Stoves and fires	107,051 16 3		
Fittings	150,623 18 2		
		378,010 19 0	
Bye-products—			
Coke	£832,258 17 6		
Breeze	13,733 11 0		
Tar and products	339,312 10 10		
Ammonia and products	112,978 13 8		
		1,298,283 13 0	
Rents receivable		4,723 10 1	
Transfer fees		245 7 6	
Total receipts		£4,542,496 11 0	

Statement of Bye-Products.

—	In Store Dec. 31, 1922.	Made during the Year.	Used in the Year.	Sold in the Year.	In Store Dec. 31, 1923.
Coke—tons	21,030	754,699	164,731	600,643	10,355
Breeze—tons	2,258	131,113	59,065	71,765	2,541
Tar—gallons	500,095	11,586,893	11,564,814	8,857	513,317
Ammoniacal liquor—butts	12,370	467,877	467,936	..	12,311

Statement of Gas Made, Sold, &c.

Total Made.	Sold.		Total Accounted for.	Number of Public Lamps.
	Public Lights (estimated).	Private Lights (per Meter).		
Therms.	Therms.	Therms.	Therms.	
88,673,406*	1,878,263	82,179,043	85,378,504	25,042

* Includes 160,579 therms purchased from H.M. Fuel Research Station.

"Flood" Coke Quenching System.

In connection with a battery of thirty Koppers coke-ovens at the Dinnington Main Colliery, there has been provided a new type of quenching car patented by Messrs. W. H. & G. A. Flood, and manufactured by Messrs. Dewhurst's Engineering Company, Ltd., of Sheffield. In the course of an illustrated description in the Jan. 25 issue of the "Iron and Coal Trades Review," it is stated that the coke is discharged direct into a tank containing water, so that the water, in rising from the bottom to the top, comes in contact with the whole surface of each piece of coke, irrespective of its position. The quenching water (which in this case is effluent water from the sulphate house) is taken from elevated storage; the tank, taking a charge of 6 tons of coke, being half filled with water. The oven is discharged down a short sloping bench direct into the tank; and immediately the discharging operation is completed, bottom valves in the tank are opened, and any surplus water is allowed to drain off. At Dinnington the quantity of water employed has been reduced to a point which ensures perfect quenching, but at the same time allows the moisture content to be kept within 4 p.ct. It is said, however, to be easily possible to work to a limit of 3 p.ct. moisture. The car has now been at work for about six months, and has given entire satisfaction.

GAS ACTS FOR 1923.

(*Continued from p.* 199.)

We resume to-day our review of the Acts passed in the last parliamentary session.

The next one to be noticed is that of the Oakham Gas and Electricity Company. Its main purpose is to confer upon the Company electricity supply powers. The area within which they are authorized to supply electricity is that in the County of Rutland in which the Company are now empowered to supply gas—that is to say, the urban district of Oakham, the parishes of Barleythorpe, Langham, Whissendine, Ashwell, and Braunston in the rural district of Oakham, and part of the parish of Burley. Power is given to the Company to erect a generating station on the lands upon which they are now authorized to manufacture gas. Before the expiration of three years after the passing of the Act, they are to lay sufficient distributing mains for the purposes of general supply throughout streets specified in one of the schedules to the Act, provided that the Minister of Transport may, on the expiration of three years—if mains have not been laid throughout the streets mentioned, or evidence is not forthcoming of the *bonâ fide* intention of the Company to lay such mains—revoke the powers of the Act with regard to the supply of electricity in the urban district, and make such Order as to payment by the Company of the cost of such representation as he thinks fit. After the expiration of five years, the Minister of Transport may also, if the Company have not laid distributing mains in the parish situate in the rural district of Oakham, revoke the powers in regard to the supply of electricity in that parish. As to maximum prices for electricity, they are as follows: In respect of the quarters ending March 31 and Dec. 31, for any amount of current up to fifteen units 15s.; and for each unit above that quantity, 1s. In respect of the quarters ending June 30 and Sept. 30, for any amount up to ten units, 10s., and for each unit over, 1s. All the usual clauses for carrying on the business of electricity supply are granted, including one which permits the Company to purchase, manufacture, provide, sell, let on hire, and otherwise deal in appliances consuming electricity.

There are a few general clauses relating to gas. Among them is one providing that the Company shall, within a year from the passing of the Act, apply to the Board of Trade, under section 1 of the Gas Regulation Act, for an Order for the purposes mentioned in that section.

The Company are authorized to raise further share capital not exceeding £9000, including premiums. But there is a proviso that the share capital, for the purposes of the existing Orders and this Act, shall not exceed in the whole £27,000, unless the Company are hereafter authorized to raise further share capital by Act or Order. Power is also given to borrow, in respect of the shares and stock issued prior to the passing of the Act, any sums not exceeding in the whole (inclusive of any money borrowed under the existing Orders) £6500. In addition, the Company may, for the purpose of the existing Orders and this Act, borrow any sum or sums not exceeding in the whole one-half of the amount which at the time of borrowing has been actually received by them on any ordinary and preference shares and stock issued after the passing of the Act. If, however, within a period of two years from the passing of the Act, or such extended period as the Electricity Commissioners may prescribe, the Company shall have failed *bonâ fide* to commence to exercise the powers of the Act with reference to the supply of electricity, the further share capital which they are authorized to raise is to be reduced from £9000 to £3000; and until they commence to exercise the electricity powers, they are not to create or issue any greater amount than £3000 of additional capital. Separate capital and revenue accounts are to be kept of the gas and electricity undertakings. Whether forming part of the gas or electricity capital, the dividends which may be paid are not to exceed the following rates: On the shares and stock constituting the original capital of £8000, the rate of 10 p.ct. per annum; on all other ordinary shares and stock, the rate of 7 p.ct. per annum. The dividends on any preference shares and stock are not to exceed 5 p.ct. on the part issued under the existing Orders; and on that issued after the passing of the Act, such rate as may be determined by the resolution creating the shares and stock, but not exceeding 7 p.ct. per annum.

The standard price for gas within the inner area is to be 4s. 6d. per 1000 c.ft., or such other price as may from time to time be prescribed by an Order under section 1 of the Gas Regulation Act. The sliding-scale is applied on the usual terms. It is also enacted that the name of the Company shall be "The Oakham Gas and Electricity Company, Ltd." In a subsequent section, it is provided that, as it is intended that electricity shall be generated by means of gas, and the generating plant is to be situate within the area occupied by the gas-works, it is expedient that, if the local authority desire to purchase the electricity undertaking, they may and shall at the same time purchase the gas undertaking. The local authority has approved of this provision. It is therefore enacted that, if the local authority shall, within six months after the expiration of a period of forty-two years from the passing of the Act, or within six months after the expiration of every subsequent period of ten years, give notice in writing to the Company requiring them to sell to them the electricity undertaking, they may and shall at the same time purchase the gas undertaking. The price to be paid for the electricity

concern is to be determined in accordance with the provision of section 2 of the Electric Lighting Act of 1888, and the price to be paid for the gas undertaking is to be such as may be agreed between the Company and the local authority, or, failing agreement, the then value of the gas undertaking as a going concern to be determined in accordance with the provisions of the Arbitration Act, 1889. There are other clauses of a more or less normal character. [*Parliamentary Agents: Messrs. Rees and Freres.*]

The Act of the RAWMARSH DISTRICT COUNCIL does not contain the clause by which they sought to establish the maximum prices for gas which were authorized by their Temporary Increases of Charges Order of 1921. But they are empowered to allow discounts for prompt payment, not exceeding in any case 10 p.ct., and, in addition, rebates to large consumers not exceeding 15 p.ct., provided that the discounts or rebates shall be of equal amount in like circumstances to all consumers. They are given power to convert secondary products arising directly or indirectly from the manufacture of gas by them, but attached to this is the one-third restriction in respect of the purchase of secondary products. Authority is conferred to purchase and supply coke-oven gas; but nothing in the Act is to exempt the Council from the provisions of any General Act relating to the manufacture or supply of coke-oven gas, or from any regulation which may be made under a General Act. Power is given to supply on hire gas apparatus and fittings; but the Council are so to adjust the charges to be made by them for any fittings, or for the fixing, repairing, or removal thereof, as to meet any expenditure by them under the powers of this section. The sums expended and received by the Council in connection with this part of the business are to be separately shown in the published accounts. There are several clauses of ordinary form, including the one as to freedom from the obligation to supply from mains of insufficient capacity, as well as one permitting the Council to contract for the supply and purchase of gas in bulk. In the financial section of the Act, it is provided that the Council may, with the consent of the Ministry of Health, borrow such further moneys as may be necessary for their water or gas undertakings. Another clause provides for any deficiency in the water or gas revenues being made good from the general district rate within one year after such deficiency has been ascertained or estimated. [*Parliamentary Agents: Messrs. Baker and Son.*]

The Act of the SMETHWICK CORPORATION is a short one. Its main object is to authorize the Corporation to acquire and use land, described in Part I. of the Schedule to the Act, for the purpose of constructing additional gas-works for the storage of gas. The land in question belongs to Messrs. Tangyes, Ltd.; and it contains 3 roods, 37 perches, and 19 square yards or thereabouts. The clauses give power to take, appropriate, and use these lands; and three years is specified as the period within which there may be compulsory purchase. Another clause gives power to utilize the land for the storage of gas and of coke and other products. [*Parliamentary Agents: Messrs. R. W. Cooper and Sons.*]

The next Act is that which incorporates and confers powers on the SOUTH ELMSALL AND DISTRICT GAS COMPANY. When noticing the Bill on Feb. 14 last, we gave an account of the circumstances which led to formation of the Company. It may be remembered that the works were originally in the possession of the late Mr. Robert Porter and Mr. Sam Bowes Beaumont. We will not reiterate the history of this matter, but just state that the clauses of the Act in the first place incorporate the new Company, and recite the purposes for which it has been formed. The limits of the district of supply are defined. The capital is to be £50,000, made up of £30,000 divided into 6000 original shares of £5 each (in the Act referred to as the original capital), and £20,000 of additional capital. The money subscribed to the original capital is to be applied in payment of the purchase price, of other moneys required by a scheduled agreement to be paid by the Company or the purchaser, and of the costs of the Act, as well as to other purposes to which capital is properly applicable. The Company are given power to borrow in respect of the original capital any sums not exceeding in the whole £9000. In addition, they may borrow any sums not exceeding in the whole one-third part of the amount of the additional capital which at the time of borrowing has been raised under the powers of the Act. The profits to be divided among the shareholders are not in any year to exceed the following rates: On the original capital, as to £7540, the rate of 10 p.ct.; and as to £22,460, the rate of 8 p.ct.; on the additional capital, 8 p.ct. on such part as is issued as ordinary, and 7 p.ct. on such part as is issued as preference. Works construction powers are given; and to the clause is appended the one-third purchase restriction for secondary products. Protective clauses are inserted in favour of the West Riding County Council, the Hemsworth Rural District Council, the Doncaster Rural District Council, and certain railway companies. As to the gas supplied to the Rural District Councils of Hemsworth and Doncaster for public lighting and other purposes, the price is to be such as may be determined in accordance with the provisions of the Gas-Works Clauses Act, 1871, but not exceeding 15·4d. per therm, or the lowest price charged for the time being to any private consumer, whichever may be the lowest. Notwithstanding anything in the Act, the Company are not to demand in respect of any gas supplied through a prepayment meter to the occupier of a dwelling-house belonging to, or provided by, the Rural District Councils of Hemsworth or Doncaster, as the case may be, in which the necessary fittings have been provided and fixed by the Council, a greater charge, in addition to the price of gas supplied, than 2·5d. per therm, in consideration of which payment the Company are to repair and renew the meter and fittings. A clause makes provision for a testing-station; and certain sections of the Gas Regulation Act are applied to the Company. The remaining clauses are of usual character. [*Parliamentary Agents: Messrs. Torr, Durnford, & Co.*]

The SOUTH OXFORDSHIRE WATER AND GAS COMPANY have secured an Act for the purpose of consolidating and reducing the capital, and making other provision with reference to the capital and affairs of the Company. Regarding the consolidation and reduction of the capital, from the commencement of the Act the existing water shares are to be converted into £24,807 of ordinary stock, and the existing gas shares into £3684 10s. ordinary stock. Each holder of an ordinary water share, whether entitled to a maximum dividend of 10 p.ct. or of 7 p.ct. per annum, is to receive £3 of ordinary water stock; for each preference water share, £5 of ordinary water stock; for each ordinary gas share entitled to a standard dividend of 10 or 7 p.ct, £3 of ordinary gas stock; for each preference gas share, £5 of ordinary gas stock; for each half share, whether in the water capital or in the gas capital, one-half of the amount of stock to which a full share of the same class would be entitled.

As to additional capital, the further amounts of £998 16s. 3d. and £111,783 which the Company are entitled to raise as part of the water capital under the Goring and Streatley District Water Order, 1903, and the Act of 1905 respectively, may be raised by the creation and issue of further amounts of ordinary water stock and of preference stock. But the Company are not to create and issue any greater nominal amount of stock than shall be sufficient to produce, including premiums, the total sum of £100,000, or any greater nominal amount of preference water stock than the nominal amount of ordinary water stock at the time issued, including in the last-mentioned sum the amount of ordinary water stock vested in the holders of existing water shares. The further £6709 7s. 6d. which the Company are entitled to raise as part of the gas capital under the powers of the Act of 1905 may be raised by the creation and issue of further amounts of ordinary gas stock and preference stock; but the Company are not to create and issue any greater nominal amount of stock than shall be sufficient to produce, including premiums, the total sum of £6000, or any greater nominal amount of preference gas stock than the nominal amount of ordinary gas stock at the time issued, including in the last-mentioned sum the amount of ordinary gas stock vested in the holders of existing gas shares. The Company are given power to issue preference stock in exchange for debentures and bonds.

Regarding dividends, the prescribed rates on the ordinary preference water and gas stocks are to be: On the ordinary water stock, the rate of 8 p.ct. per annum; on the preference water stock, 7 p.ct. per annum; on the ordinary gas stock, 8 p.ct. per annum (this to be subject to variation in accordance with the provisions of the sliding-scale); and on the preference gas stock, 7 p.ct. per annum. The standard price to be charged for gas is to continue at 22·8d. per therm, as prescribed by the South Oxfordshire Gas (Charges) Order, 1921, subject to revision under the Gas Regulation Act.

Notwithstanding anything in the Act of 1905, any debentures already issued by the Company, and forming part of the water capital, are not in any way invalidated by the reduction in the nominal value of the water capital effected by the conversion of the existing water shares into ordinary water stock; but the Company are not to be entitled to borrow on mortgage of the water undertaking in respect of the amount of ordinary water stock vested in the holders of existing water shares, any further sum unless and until the aggregate amount owing by the Company on the debentures issued prior to the commencement of the Act, and secured on the water undertaking, has been reduced below £12,400. From and after such reduction, the Company may borrow on mortgage of their water undertaking in respect of the ordinary water stock such sum or sums as will, together with the nominal value of the debentures for the time being outstanding, amount to a total not exceeding £12,400. Notwithstanding anything in the Act of 1905, any debentures already issued by the Company, and forming part of the gas capital, shall not be in any way invalidated by the reduction in the nominal value of the gas capital effected by the conversion of the existing gas shares into ordinary gas stock; but the Company are not to be entitled to borrow on mortgage of the gas undertaking in respect of the amount of ordinary gas stock which is vested in the holders of existing gas shares, any further sum unless and until the aggregate amount owing by the Company on the debentures issued prior to the commencement of this Act, and secured on the gas undertaking, has been reduced below £1800. From and after such reduction, the Company may borrow on mortgage of their gas undertaking in respect of the said amount of ordinary gas stock such sum or sums as will, together with the nominal value of the debentures for the time being outstanding, amount to a total not exceeding £1800. On both undertakings the Company may borrow sums not exceeding in the whole one-half of the amount received (including premiums) on the issue, after the commencement of the Act, of ordinary or preference water stock or (as the case may be) of ordinary or preference gas stock. Power is also given to issue redeemable preference and debenture stock. A number of other clauses of general character are included. [*Parliamentary Agents: Messrs. Rees and Freres.*]

(*To be concluded.*)

THE "H-H" CONCENTRATING TABLE.

A Simple and Effective System of Coal Concentration.

The aim of the gas engineer is to produce gas efficiently; and it is but natural that stricter attention should be paid to the raw material—coal—which is of such great importance in economic gas production. Prior to the war, colliery managements were undoubtedly making efforts to meet the requirements of the gas industry in this respect, and in many cases coal was being treated in such a manner at the pit-head as to eliminate the greater portion of inert material. After all, this is only reasonable, for a bulk of useless material entails excessive and avoidable freightage, greater handling at the place of carbonization, and the absorption of heat in the gas-making process. Moreover, it imposes a severe limitation on the output of any retort plant. Then came the war; and in this time of stress activities of this nature, calculated to be of benefit to all coal users, and to the gas industry in particular, necessarily ceased. The war is now a thing of the past, but it cannot be said that the coal received at most gas-works to-day is of the same quality as that of 1913, and it is time that energy was expended to arouse the colliery managements to resume their endeavours to meet the demands of modern gas-works practice. For this reason, we think that gas engineers, and, indeed, all concerned with the efficient handling and utilization of coal, will be interested in a description of a new concentrating table, known as the "H-H" Universal, which is simple in construction and at the same time efficient in operation.

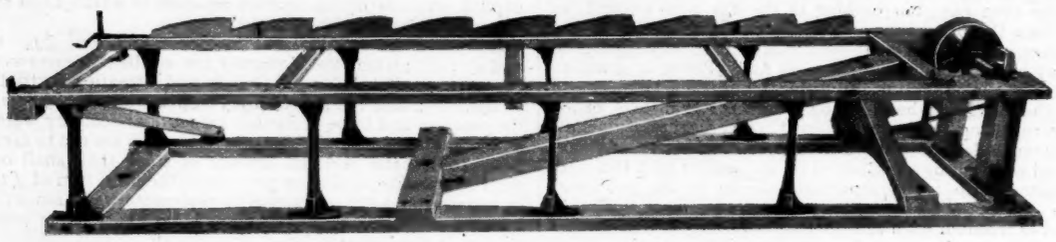


FIG. 1.—TABLE WITH DECK REMOVED.

DETAIL OF TABLE.

To a rigid frame or foundation are bolted interchangeable leg support castings, which are alike either for floor or shaking frame, and are swung round in a horizontal plane so that the supports point to a common centre. The same kind of castings are bolted in corresponding positions to the underside of the shaking frame. Flexible supporting legs of laminated wood strip construction are placed between the floor castings and shaking-frame castings. These legs are made of hickory or ash, treated in oil, graphited, and wrapped with tape. They are so constructed that bending is uniform throughout the leg, thereby relieving it from any undue stress next to the castings. At the "concentrate" end of the table, a flexible brace connects the shaking frame and the floor frame, preventing side sway, and helping to guide the table movement in its curvilinear path. This brace can be seen in fig. 1.

Fig. 2.—The "H-H" Concentrating Table.

Fitting between the head ends of the shaking frame, and solidly bolted thereto, is a heavy yoke, to the ends of which is clamped fast a shaft which carries an unbalanced pulley. Pressing against the yoke crosspiece are two coil springs which are proportioned to suit the power of the unbalanced weight in the revolving pulley. The purpose of these springs is to accelerate the forward, and retard and limit the backward, motion. The simplicity of the table may be appreciated when it is stated that the driving mechanism consists solely of the loose pulley. When revolving, the centrifugal force of this unbalanced weight imparts a horizontal motion to the shaking frame to which the table deck is attached. [Readers may remember that reference was made to a vibratory screen for coke, manufactured by Messrs. Huntingdon, Heberlein & Co., Ltd.—the makers of the "H-H" concentrator—in the "JOURNAL" for June 13, 1923, p. 665. This screen is similar in principle to the concentrating table.]

The object of the curved motion is to permit the use of long upwardly curved riffles, in which the back flow of the wash water arrests the forward travel of the coal, while the uphill motion easily brings the heavier material out beyond the end of the riffles, and continues to hold the concentrates high up on the table and well away from the coal. Thus the whole deck area becomes an effective concentrating surface. The power required is ¼-H.P. for light loads, and ¾-H.P. for heavy—an average of ½-H.P.—and it is interesting to note that, while the table is running, the stroke —which automatically increases with overload or decreases with underload—can be changed in less than three seconds.

WORKING RESULTS.

From Messrs. Hugh Wood & Co., Ltd., of Newcastle-upon-Tyne (London Office—No. 65, Fenchurch Street, E.C.), from whom full particulars of the "H-H" Universal concentrating table may be obtained, we have received the following details of working tests. The first series of results relates to samples of the washery slurry of the Allerdale Coal Company, Cumberland.

—		"Allerdale Original."	"Allerdale Clean Coal."	"Allerdale Dirt."
Dry samples—				
Clean coal	p.ct.	56·0	98·5	1·8
Free dirt of over 1400° s.g.	,,	44·0	1·5	98·2
Ash in clean coal	,,	14 03	6·6	17·5
Ash in free dirt	,,	76·5	62·0	82·5

The second table shows the results obtained on small coal-cutter curvings (containing 30 p.ct. of dirt) from the Franwellgate Colliery:

	P.Ct.
"COAL END."	
Sample as received—	
Moisture	16·2
Dry sample—	
Clean coal	96·9
Free dirt (over 1400° S.G.)	3·1
Ash in clean coal	6·0
Ash in free dirt	44·0
"STONE END."	
Sample as received—	
Moisture	13·7
Dry sample—	
Coal	1·3
Free dirt (over 1400° S.G.)	98·7
Ash in coal	28·5
Ash in free dirt	79·33

Manchester and Yorkshire Junior Associations' Joint Visit.—There has been arranged for Wednesday, March 5, a joint visit of the Manchester and District Junior Gas Association and the Yorkshire Junior Gas Association to the works of the Stanton Iron Works Company, Ltd., near Nottingham. The visitors will be guests of the Directors of the Company at lunch, prior to the inspection of the works.

London and Southern District Junior Gas Association.—There is to be, on Saturday, Feb. 9, a visit to the Fulham Works of the Gas Light and Coke Company, an account of which was given by Mr. Walter Grogono in his Presidential Address; and the Governor and Directors of the Company have kindly invited the members to luncheon previous to the tour of inspection. On Friday evening, Feb. 22, at the Westminster Technical Institute, S.W., Mr. W. T. Kenshole, Junior Assistant Engineer to the Lea Bridge District Gas Company, will read a paper entitled "Notes on the Lubrication of Gas-Works Plant." The annual dinner and concert will take place at the Great Eastern Hotel, Liverpool Street, on Saturday, March 1.

COAL CARBONIZATION AND ITS PRODUCTS.

The Work of the Fuel Research Board.

On Friday, Jan. 18, Dr. C. H. Lander read a paper on "The Work of the Fuel Research Board" before the Midland Institute of Mining Engineers. The position which the author occupies as Director of Fuel Research lends great interest to this paper. Tracing at the outset the gradual development of the fuel problem since the nineteenth century, when supplies of coal were ample and cheap, he recalled the establishment of the Board in 1917, giving details of its personnel and of the changes that have taken place since then, culminating in the retirement of Sir George Beilby last year, and the author's appointment to fill the vacancy.

Coal Resources.

In their First Report the Board laid down two main lines of inquiry—viz., a survey and classification of the coal seams in the various mining districts by means of chemical and physical tests in the laboratory, and, where necessary, on a large scale; and an investigation of the practical problems which must be solved if any large proportion of the raw fuel at present burned in its natural state is to be replaced by the various forms available from coal by carbonization and gasification processes. A knowledge of the characteristics of the various coals is required before the best methods of treatment and utilization can be determined. The work of the survey is supplementary to that of the Geological Survey, with which it does not conflict. An important consideration in such a survey is the choice of methods of sampling and analysis of coal. Many analyses have been made and published, but there have been no standard methods of conducting these, and different investigators have adopted variations in their procedure. Consequently, the results are not always comparable. In order to ensure that the results of examinations of coal for the purposes of the survey should not suffer from any such uncertainty, the Research Board appointed a Committee to go into the question. An interim report from the Committee has recently been published. The survey has already led to practical results; and a case in the Yorkshire district may be quoted where the value of a seam for producing metallurgical coke was seriously diminished by the high sulphur content. It was found that almost the whole of this sulphur was contained in a narrow band of the coal. This band is now left underground, and the coal raised is of low sulphur content.

Carbonization of Coal.

The second line of inquiry forms a part only of the general work which lies before the Board, and was selected as one likely to lead to practical results in helping towards the solution of certain urgent problems. These were to determine whether it was possible: (1) To provide home supplies of fuel oil for the navy and mercantile marine; (2) to provide home supplies of motor spirit for road and air transport; (3) to provide an economical smokeless fuel for domestic purposes, and thus assist in reducing the smoke evil. The only course which could satisfy all these needs simultaneously would be the replacement of a large proportion of the raw coal at present burned in boilers, furnaces, and domestic fires by manufactured fuel prepared from raw coal by submitting it to distillation. It is ot comparatively little use from the national point of view to devise a process—however efficient and economical it may be—which is applicable only to special raw materials of which the available supplies are small, or which depends for economic success on special limited facilities for the disposal of bye-products.

Low-Temperature Carbonization.

The method of carbonizing coal at low temperature (*i.e.*, up to 600° C.) is one which shows the greatest promise in the direction of providing a home supply of fuel oil, and at the same time a smokeless solid fuel for domestic and industrial uses. By suitable treatment of coal of the types used for domestic purposes, it is possible to obtain from each ton of coal some 14 or 15 cwt. of smokeless solid fuel very suitable for such purposes, about 13 gallons of fuel oil, 2½ gallons of motor spirit, and between 3000 and 4000 c.ft. of rich gas of a calorific value of from 800 to 1000 B.Th.U.; these amounts varying somewhat with the coal used and the process adopted. About 35 million tons of raw coal are burned annually for domestic purposes; and if this quantity were all treated by a low-temperature process, there would result approximately 85 million gallons of motor spirit, and 450 million gallons of fuel oil. These figures are based on experiments the Board have undertaken to determine the average yields which can be relied on from such coals as are likely to be used on a large scale.

A large amount of work has been carried out by the Board on this subject, much of which has already been published. At present they are working on a modification of the Sutcliffe-Evans process. The coal is first passed through a disintegrator and then heated to about 350° C., or just below the point at which decomposition begins. It is then briquetted, without binder, under pressure, and carbonized in cast-iron vertical retorts. Laboratory tests show that briquettes made in this way at a temperature of 350° C. and a pressure of 2 tons per sq. in. are as strong and compact as those made while cold with a pressure of 10 tons per sq. in. Experience so far obtained indicates that such briquettes will be easily carbonized in simple retorts; but there are certain difficulties in pre-heating and briquetting the coal, which have not yet been overcome.

The Structure of Coke.

A question of wide importance is the structure of coke and the factors which affect its combustibility. Coke varies widely in its freedom of burning and in its value for metallurgical purposes; but the full reasons for this variation are not known. Chemical composition and mechanical strength are important factors, but these by no means account for all the differences in behaviour. It seems probable that the microscopic structure of the coke is of great importance. Sir George Beilby has carried out investigations on coke structure; and some of the results are published in the Board's report on "Low-Temperature Carbonization." The question has an important bearing on smokeless fuel for domestic purposes, as well as on the cost of blast-furnace and other metallurgical operations. The recently organized Fuel Economy Committee of the National Federation of Iron and Steel Manufacturers propose to investigate the last-mentioned aspect, and have sought the co-operation of the Board. Dr. Lander has been appointed a member of this Committee.

Other Investigations.

The Fuel Research Board instituted at the Fuel Research Station a series of large-scale experiments on methods of economic gas production. Of these, the greatest promise of immediate value was held out in the experiment which dealt with the effect of introducing steam to the interior of existing vertical retorts. The tests show in every case that steaming results in a considerable gain in the more highly priced products, with a consequent gain in the economic efficiency of the process.

Water gas has been adopted at the station as the standard fuel for heating retorts, &c., where an accurate measurement of the heat used is required. A Humphreys and Glasgow plant has been installed for this purpose, with a nominal capacity of 500,000 c.ft. of gas per day. Experiments were carried out with the plant, and a report on this has been published.

Among other investigations may be mentioned the hydrogenation of oils and coals, petrol mixtures for motor-car engines, producer gas for motor-lorry engines, &c.; and it is of interest to note that a grant has been made for several years to the Sanitary Committee of the Manchester City Council for investigation into improved methods of domestic heating and ventilation During the last two years Dr. Margaret Fishenden, who was employed in this work, has been working directly under the Board, in London, on the same subjects. The policy of the Board is to publish all the results of their work, and the full figures obtained from tests, so that the consistency and accuracy of the results can be judged.

Discussion.

A very full discussion followed the reading of the paper; and we are indebted to "The Iron and Coal Trades Review" for the few extracts made. An interesting suggestion was made by the President (Mr. John Brass), who asked whether a field for the utilization of gas for motive power did not exist in the employment of gas in cylinders and under high pressures. Dr. Lander, in reply, said that during and since the war the London General Omnibus Company had run buses with cylinders of compressed gas, with a measure of success; but they found that under existing conditions—with the price they had to pay for gas, and the comparatively small radius of action of the buses—it was not a commercial proposition. Regarding low-temperature carbonization, one important point was the balancing of the products. This country possessed an enormous number of domestic grates, all turning coal to smoke. Could all these be replaced by gas-fires? This was a big question. Suppose they were all so replaced, and made smokeless in that way, what was to become of the coke? The balance would be upset. He thought it was extremely likely that in the future, if they did get to a time when low-temperature carbonization of coal had been solved on the commercial scale, then the gas industry would welcome this new method of carbonization, because it would enable them to obtain a product which they could put into the domestic fireplace, so that, instead of being mere purveyors of gas they would be purveyors of gas *plus* coke of a type that could be used in the domestic grate without any alterations in the grate itself. Suppose they were to try to obtain sufficient oil from the coke-oven industry to run the Navy, that would put the whole thing out of balance, and they would have other difficulties; there would be an enormous amount of gas unsaleable, and probably metallurgical coke might become a drug on the market for the time being. This method of taking the domestic coal—coal used otherwise than in the raw state—was the one more likely to fill the bill, because it gave them plenty of oil but not very much gas; but what gas it did give them was of very good quality and was very important. It had been said that the rich gas was the least speculative side of the process, but it had been frequently neglected. One frequently saw attempts at making a balance-sheet for the low-temperature process, in which the gas was not credited. If they had no use for the gas, they were biasing the thing against them to the extent of something like 5s. or 6s. a ton.

The "JOURNAL" is in a favourable position to give prompt attention to fuller translations, especially from the French or German, of any abstracts which appear from time to time in its columns, or to deal with any other such work which its readers may require. Quotations may be had on application.

GAS ACCOUNTANCY.

By H. E. IBBS, of the Gas Light and Coke Company.

[A Lecture in connection with the School of Accountancy Students' Association, delivered at the Memorial Hall, Farringdon Street, E.C., on Tuesday, Jan. 15.]

(*Concluded from p.* 258.)

THE REVENUE ACCOUNT.

Having now dealt with the subject of capital and dividends, I propose to turn your attention to a revenue account, and I shall deal with the one published by the Gas Light and Coke Company in their annual statement of accounts for the year 1922, a copy of which you have. [These constituted Statements Nos. VIII. and IX., which are not reproduced.]

Before doing so, it is necessary for me to say that, although it is not essential that an accountant should be fully qualified as an engineer, it is very necessary that he should be educated to a certain extent in the practical side of the business, as otherwise he would not be in a position to compile a proper account or to give a satisfactory explanation of the figures; and you will find that, in order to furnish you with detailed information with regard to the various items, I shall have to give you also a general idea of the physical practice underlying them.

You will notice that the expenditure is divided up mainly under manufacture, distribution, rents, rates and taxes, and management, the other items being equally self-explanatory, for various charges outside the four main categories. On the receipts side, the principal items are the revenue from gas and the revenue from residuals.

The method adopted in regard to the accounting and charging for gas consumed is as follows: The quantity made is registered at the works by means of huge meters, which are capable of dealing with millions of cubic feet. The quantity used by the consumers is registered by the meters on their premises. I might mention that the Gas Light and Coke Company have nearly a million of these meters. At stated periods, the gas registered by the consumers' meters is ascertained and recorded, both in cubic feet and in therms, on cards kept by the consumers and in books for the use of the inspectors. The calculation from cubic feet to therms is done by means of a scale with which each meter reader is provided. The consumptions are entered from the inspectors' books into ledgers, together with the charge that is to be made, and from there the information is carried into books for the collectors' use. From these latter books, the accounts are compiled, and are then delivered to the consumers.

With the prepayment, or penny-in-the-slot, meters, it is simply a question of collecting the money from the meter and checking it at the time by referring to the quantity of gas registered by the meter. The price charged to the automatic consumer is arrived at by taking the price (converted to the 1000 c.ft. basis) charged

STATEMENT No. X.—*Gas Supplied by Automatic Meters.*

[Fixing the number of cubic feet obtainable for one penny.]

	d.
Price of gas per therm	8·6
Rent of meter, stove, and fittings	2·0
	10·6
Calorific value of gas	500 B.Th.U.
Price of gas per 1000 c.ft. therefore 10·6d. × 5* therms	= 4s. 5d.
Cubic feet of gas per penny therefore 1000 ÷ 4s. 5d.	= say, 19 c.ft.

* See Statement No. III.

to the ordinary consumer, and adding thereto a stated sum in respect of the hire of the meter, stove, and fittings, and dividing this sum into 1000, in order to obtain the number of cubic feet that should be given for the penny. The automatic attachment to the meter is adjusted to give the number of cubic feet thus shown. Should it not be practicable to set the meters to the exact quantity per penny, the nearest number below such quantity is used, and the money that would therefore be overpaid is returned by the collector. The total quantity of gas thus accounted for should in theory agree with the quantity made, but in practice this never happens, as several things occur during the transit of the gas which make it practically impossible for the quantities at both ends to tally. This difference is described as the unaccounted-for gas, and usually amounts to from 5 to 8 p.ct. of the quantity originally made.

Having ascertained the quantity of gas actually sold, we arrive at the point at which the factor is obtained upon which the working costs of all gas undertakings are based and compared. You will find that all the statistical records of the gas industry for a great number of years past deal with receipts and expenditure on the basis of 1000 c.ft. of gas sold. Now that the therm has been introduced, however, a change is rapidly coming over the situation, and gas officials are becoming more and more aware of the fallacious character of the results as stated in the past, and are realizing the impossibility of considering any other figures than those worked out on the therm basis. In the one case merely the physical volume of the gas, irrespective of its quality, is dealt with; but with the therm the quantity and quality are combined in one factor, and this must naturally provide the more satisfactory medium, not only for fixing the charge to the consumer, but for ascertaining an analysis of the cost leading up to such charge.

STATEMENT No. XI.

	Results per 1000 C.Ft.		Results per Therm.	
	GAS COMPANY.		GAS COMPANY.	
	"A"	"B"	"A"	"B"
B.Th.U. per C.Ft.	400	500	400	500
	Pence.	Pence.	Pence.	Pence.
Charge for gas	60	60	15·0	12 0
Manufacture	30	30	7·5	6·0
Distribution	12	12	3·0	2·4
Rates and taxes	4	4	1·0	0·8
Management, co-partnership, interest, dividends, &c.	14	14	3·5	2 8
	60	60	15·0	12·0

I have prepared a statement (No. XI.) which will show you, in the first place, in a very condensed form, the charge for gas on the 1000 c.ft. basis, together with the main items of the probable cost of producing and delivering such gas. The figures thus given, we will assume for this purpose, refer to a company delivering a gas of a calorific power of 400 B.Th.U., and also to a company delivering a gas of a calorific power of 500 B.Th.U. Then follow two sets of figures which show the effect of the translation on to the therm basis. You will see that, although the charge and the costs were identical on the 1000 c.ft. basis, a very different result is obtained when the quality is taken into consideration; the charge for the gas of 400 B.Th.U. being 15d. per therm, as against the charge for the 500 B.Th.U. gas of 12d. The value of the comparison thus revealed lies undoubtedly in the endeavour that would be speedily made to bring about such alterations in the conduct of an undertaking as would help to lessen the increase in the costs thus shown.

Under "manufacture," we have first of all the charge for coal. This item is the total cost, including the purchase, delivery, unloading, and handling of the coal, right up to the retort-house, where it is carbonized. If a company should own a fleet of steamers, as is the case with the Gas Light and Coke Company, accounts dealing very fully with all the running expenses would have to be kept. Then follow the items relating to the raw material used in the manufacture of carburetted water gas. Everyone is probably aware that, for the manufacture of gas, coal is principally used; but it is not so generally known that gas is also made by the use of coke. I have previously referred to this, but it may be just as well to explain once again what the process is. Coke is placed in what is called a generator, and then heated to incandescence—*i.e.*, to white heat. Steam is introduced, which is obtained from boilers fired by coke; and the combination results in a gas being formed. This gas is of a lower calorific value than the gas obtained from coal, but, if necessary, it can be raised to a higher calorific value by adding petroleum oil. This process is in use in the Gas Light and Coke Company, and therefore the two items for coke and oil appear in the accounts.

Purification, which appears in this section, is the cost of extracting sulphuretted hydrogen from the gas, which, if not removed, would have a very deleterious effect wherever the gas was used; and the last item in the section is the wear and tear and maintenance of the works and plant. This item forms a large portion of the cost, and embraces an enormous quantity of detail. You may be interested to know that an analysis of this charge is made under no less than 1700 distinct sub-headings.

The total cost of manufacture represents the full expenditure involved in the making of gas right up to and into the holder. From this cost, however, a deduction should be made of the revenue which has been obtained from residuals, the amount of which appears on the credit side of the account. From a ton of coal roughly 12,000 to 13,000 c.ft. of gas, 15 cwt. of carbon (*i.e.*, coke and the dust which is termed "breeze"), 10 gallons of tar, and 28 to 30 gallons of liquor (which contains the ammonia washed out of the gas) are obtained. As all these are saleable in the form in which they are originally produced, or after having been treated in one way or another, there is usually quite a large revenue, which for accountancy purposes should be taken into consideration when arriving at the real cost to an undertaking of either its coal or the manufacture of its gas.

The next main item, distribution, deals with all the charges that are incurred in delivering the gas from the holder right up to the consumer's meter—and, indeed, into his premises, as the heading "Stove Repairs" refers to the cookers, fires, &c., that are let out on hire. Distribution covers the cost of repairing mains and the smaller, or service, pipes which lead off from the mains into the houses, and of pulling up and replacing roads and footpaths, together with the cost of repairs of meters.

ANALYSIS OF CHARGES.

I propose to say a few words about the analysis of the charges in this section, because so many of them are incurred directly on behalf of the consumer, and in many cases are paid for by him. Consequently, it is necessary for minute particulars of the cost of labour and materials to be available, and this means that every operation must be accounted for. The method that we

adopt is as follows—I am taking as an illustration a single task, such as the fixing of a meter in a consumer's premises.

First of all, the order would be received from the consumer for the work to be done, and the foreman attached to the district in which the premises are situated would be accordingly instructed by the inspector. The foreman would then select a fitter, and arrange for the work to be carried out. The fitter would receive an order form giving the quantities and descriptions of material required for the job, which he would present to the storekeeper. At the finish of his day's work, the fitter would bring back the material that had not been used on the job, and this quantity, deducted from the amount originally issued to him, would show the material actually used. The storekeeper would mark the order accordingly, and a copy thereof would be sent through to the appropriate office. This office would be provided by the purchasing department with a schedule showing the price to be placed upon every article used, and calculations would then be made on comptometer machines, and the cost ascertained. This cost, together with that of the labour, which would be taken from the man's daily sheet, would be the cost of the job—without supervision and overhead charges, these latter being provided by the addition of a percentage based upon actual experience. You may be interested to know that, in the course of a year, there would be no less than 1,500,000 orders for one kind of work or another coming through, with an average of three to four different kinds of material on every form, which means that over 4,500,000 calculations for stores alone have to be performed every year. Having obtained the cost of each operation, totals would be accumulated and carried to statements which would be issued monthly, giving an analysis of practically the whole of the expenditure in the distribution section under some forty headings, and in respect of no less than 97 separate districts attached to the Company.

You will see, therefore, how difficult it is to get an impression of the immense undercurrent of accountancy work that is continually going on, by merely glancing at the yearly published account; and the system which I have just explained to you, while possibly not carried out to such a minute extent, is adopted in the case of the majority of the other items shown in the revenue account. The item in the residuals dealing with tar and its products involves the keeping of a complete set of books such as you would find on visiting the offices of any of the largest firms of distillers in the country.

Costing.

In these days, a word that is very frequently heard is "costing," and one feels that the general impression is that a new phase has been introduced into accountancy. This, of course, is not so. It must be apparent that the accounts of an undertaking merely sum up the financial situation, and, while the figures serve to indicate the direction in which matters are moving, they do so only in a general way. It must not, however, be inferred that the management is content to be guided only by the results shown in the balance-sheet, and it must be assumed, therefore, that a considerable fund of information in regard to the thousand-and-one items that go to make up the charges is required. When that is so, it is necessary for an exhaustive analysis to be made, and when, so to speak, a microscope is applied, the operation in latter-day parlance becomes "costing." Costing is not, therefore, a new principle of accountancy—only a word indicating degree. The method of analysis that I described to you would, I suppose, be designated "costing" by ninety-nine out of every hundred people, but to me it only signifies an extension to a much greater degree of the analysis to which, during the whole of my experience, I have been accustomed.

Net Revenue Account.

The other headings in the revenue account, as I have said, practically explain themselves, but there is one to which I propose specially to refer—viz., co-partnership—as a very interesting principle is involved which deserves a word or two. Before doing so, however, I should like to carry the revenue account a stage further, in order to show you how the balance is disposed of. The balance is carried to what is called a "net revenue account," and certain charges are made against it which do not come under working costs. For instance, there is the interest that has to be paid on the debenture stocks or mortgages, as a fixed charge, which must be dealt with before the final balance is arrived at. Then you will notice that there is a charge for interest on sundry loans, which, again, is outside the ordinary working expenses. This is made up of the interest on money that is temporarily borrowed from the bankers, and also the interest on the various funds connected with the Company, which are being used as working capital. The net balance of this account shows the net profit for the year; and it is then left to the directors and shareholders to say what dividend—bearing in mind the provisions attaching to the sliding-scale—shall be declared. The dividend so declared, deducted from the net profit, leaves either a balance or a deficit as the full and complete result of the year's operations.

The Reserve Fund.

You will see an account called the reserve fund. I should not in the ordinary way refer to it; but in the gas industry a reserve fund has a different significance from what would be generally understood by such an account. This reserve fund refers entirely to dividends, and is built up from the amounts that are specially set aside out of dividends. For instance, under the sliding-scale a dividend of 5½ p.ct. may be payable; but it is open to a company to pay only (say) 5¼ p.ct., and to place the remaining ¼ p.ct. to the reserve fund, with the object of providing funds to assist in the payment of a full dividend at some future time, should there not be sufficient profit for the year to allow for payment otherwise. The reserve fund, as you will therefore see, can only be distributed by way of dividend, and cannot be drawn upon for the purpose of covering any special revenue expenditure.

It is, of course, impossible to give you a full idea of the variety of work that has to be undertaken by the accountant of a big corporation, as he should deal not only with the larger financial questions of the undertaking, but should also be interested in the financial side of every operation, however small or insignificant. It follows, also, that no new policy should be inaugurated without his assistance; and you will realize that it is almost impossible to think of any operation in business that has not a bearing in some form or another on the financial aspect.

Co-Partnership.

Now with regard to co-partnership. For many years the lack of harmony that existed between employer and employed was due to a very great extent to the fact that, however much their interests lay in the same direction—as, indeed, must naturally have been the case—it was not always apparent to the one who was employed; and it was realized, therefore, that, if some arrangement could be made whereby the employed could share more directly in the prosperity of the undertaking, his interest in its welfare would be greatly strengthened. With this object in view, a scheme was evolved some years ago whereby the employees in a certain gas undertaking received a bonus representing a percentage of their annual wages. This bonus was used mainly to purchase ordinary stock of the undertaking for, and on behalf of, the individual to whom the bonus was granted. Inasmuch as the bonus—which was, by the way, governed by the price of gas—was as much as 10 p.ct. or more, the sum so invested became a considerable amount after a number of years.

Co-partnership was adopted by the Gas Light and Coke Company in 1909. The bonus was originally governed by the price of gas; and in time 5 p.ct. was reached. The war, however, intervened, and the scale, owing to the rapid rise in the price of gas, became inoperative. It was then that the Directors of the Company conceived the idea of calculating the bonus on the basis of the percentage rate of dividend paid to the shareholders, instead of on the price of gas.

This, to my mind, is a better principle, as the interests of both the worker and the shareholder were brought directly into line with one another. The Directors adopted this principle by arguing that, whereas in the case of the shareholder his savings by way of cash were placed at the disposal of the undertaking, the employee could be said to place the value of his labour into the concern, and the yearly wage paid to the worker would seem, therefore, to provide an excellent basis upon which to calculate the percentage bonus. An appreciable sum, as you will see by the accounts, is divided up each year among the employees. The result of our co-partnership to date is that the Company's employees possess nearly half-a-million pounds of stock which is entirely their own, and which undoubtedly has the effect of bringing them into closer sympathy with the management.

I might say that there is a Committee known as the Co-Partnership Committee, composed of workmen and officers, who meet periodically under the chairmanship of the Governor of the Company. Many difficulties are thereby smoothed over, and the general policy of the Company is transmitted through this agency to the body of the workers, who otherwise would have no interest in the undertaking beyond the necessity of doing a day's work, more or less like a machine.

The principle brought into practice by the gas industry will, I am sure, find its way more and more into the business life of the country, as there can be no doubt whatever of the beneficial effect that must follow whenever the employer and the employed can be brought into personal touch with one another. I am sure it is the lack of sympathy caused by want of intimacy between the employer and the employed that has brought about so many difficulties in the past.

Joint Scottish Junior Gas Association Meeting.—There is to be a joint meeting of the Eastern and Western Districts of the Association next Saturday afternoon, the 9th inst. The proceedings will open at 3.30, in St. Andrew's Hotel, St. Andrew's Street, Edinburgh. It has been decided to depart on this occasion from the usual practice, and, instead of a paper, there will be an informal debate on current topics. Mr. M'Donald, of Prestonpans, who distributes Tully gas only, will open the discussion with a short contribution on the therm.

Iron and Steel Institute.—The annual general meeting of the Institute will take place on Thursday and Friday, May 8 and 9, at the Institution of Civil Engineers, Great George Street, S.W.; the annual dinner being arranged for the first-named day, at the Hotel Cecil. Members are reminded that this month the Council are prepared to consider applications for grants from the Carnegie Fund in aid of research work on some subject of practical importance relating to the metallurgy of iron and steel, or allied subjects. Application forms can be obtained from the Secretary of the Institute at No. 28, Victoria Street, S.W. Results of research work must be communicated in the form of a report.

MIDLAND JUNIOR GAS ASSOCIATION.

Visit to the Sutherland Meter Company's Works.

Members of the Association, to the number of about seventy, paid a visit on Saturday last to the works of the Sutherland Meter Company, Ltd., Electric Avenue, Witton, Birmingham. The party (which included Mr. L. H. Thomas, the President) were received by Mr. H. E. Wilson (Chairman of the Company), Mr. Reginald G. Clarry, M.P., Mr. W. H. Bennett, and Mr. J. H. Wilson (Directors); with whom were Mr. L. Hughes (Commercial Manager), Mr. C. F. Knight (Works Manager), and Mr. C. Madeley (Secretary).

The various departments were visited in turn; the members being divided into four parties. Mr. H. S. Murphy and Mr. S. Sturgess assisted the other members of the staff in conducting the visitors over the works. A very large proportion of the male operatives were in attendance, and the parties were thus enabled to see work carried out on the whole of the processes. All were greatly impressed by the amount of detail work involved in the construction of a dry meter, and by the varying methods that are adopted to ensure durability and high efficiency. It was pointed out that the Company have, for the past quarter-of-a-century, been continuously engaged in dry gas-meter production, and that the manufactures also include street gas-lamps and automatic controllers. The customers include a large proportion of the gas undertakings in this country, and a steady export business is maintained.

The visitors learned that in a 5-light prepayment meter there are no fewer than 261 parts, and that the different types and sizes of meters number over 60. These include a special type of coin meter for gas-fires for use in hotel bedrooms, which meter, though of small dimensions, has a large capacity. In the press shop and tool room the power presses were in operation, as well as machines and stamps. The equipment in the testing room was of absorbing interest. Particular attention is, of course, paid to testing for soundness, and close care in respect of details is given to ensure that a meter is alike safe for use and correct in working. All meters are subjected by the firm to a 10-in. pressure. Another interesting feature was the test made on the prepayment meter stop valves for quantity—*i.e.*, correct quantity given per coin, to agree with setting.

In the paint shop demonstrations were given of machine spray painting (each meter receives two coats of paint); and in the brass shop various interesting processes were being carried out, including wheel and screw cutting and the assembling of prepayment attachments. In the tin shop the work of building-up the meters was watched. A good deal of interest, too, centred in the models, and especially in the latest pattern of a prepayment meter with outside valve, which, if necessary, can be overhauled with the meter *in situ*. Another point of importance is that the coin mechanism cannot be operated by anything other than by the coin for which the meter is intended.

The Directors entertained the visitors at tea, at the conclusion of which

Mr. H. E. WILSON extended on behalf of the Directors and staff a cordial welcome to the members of the Association. He hoped the Company had been able to show them something of interest. The firm appreciated such a visit, for they were always anxious to be in close touch with the actual users of the instruments they made. It was of value to bring customers and manufacturers together, so that they might discuss the lines upon which work was being carried-out; and if, at any time, the Company could help by experiment, or otherwise, they would be glad to afford assistance, as well as to receive suggestions that might eventually prove to be of mutual benefit. "In the meter trade," added the Chairman, "we have difficult conditions to meet, and it is only through the goodwill of gentlemen like yourselves that we can really exist. We supply the meter with an almost unconditional guarantee for five years, while we do not control the quality of the gas you put through it, or know whether you overload, or where you put it. So that we live, to a great extent, upon your generosity and sense of fairness; and I should like to say how much we appreciate the sense of fairness shown to us by the gas industry as a whole." A good deal had been said, from time to time, he added, with regard to the prices of meters and repairs. He had recently had some figures taken out, and found that the cost of wages to-day, compared with 1914, showed approximately 91 p.ct. increase, and the cost of materials 80 p.ct. increase. On the other hand, the actual increase in the selling price of a new meter was 62 p.ct., so that he did not think they, as meter manufacturers, were treating the gas industry unfairly. They were continually trying to increase efficiency, and he believed they were approaching a stage when they could not get very much further. Fourteen years had elapsed since the Association paid the firm a similar visit, and the hope of the Directors was that they would not allow the interval to be so long before they came again to the works.

The PRESIDENT proposed a vote of thanks to the firm for allowing the members to inspect the works, and for their generosity in entertaining them, and to the members of the staff for explaining the various processes. The members had been much interested in what they had seen. He fully realized how important it was that those on the distribution and fittings sides of the industry should have a complete knowledge of meters. It was necessary to look at the gas industry as one great whole. Personally he had been much surprised to learn of the great number of processes necessary to the making of a meter, as well as the large number of parts. The efficiency was very high indeed. Makers of gas appliances and makers of the gas which was to be used in them, although separate, had much in common, in that they desired to do all that they could to further the industry.

The resolution was seconded by Mr. J. H. GEE (Nechells), who observed that the visit had been most valuable and instructive.

Mr. R. J. ROGERS (Superintendent of the Fittings Department of the Birmingham Gas Department) said he was present when the Junior Association visited the works fourteen years ago, and he knew how great was the difference in the way in which the work was carried on now compared with that time. The gas-meter was too little understood, by the general public certainly; and the details were not always sufficiently known even by some connected with the distribution department of a gas undertaking. By visits to such works, they were able to follow out the whole process of manufacture, and to appreciate how great was the care exercised in putting the component parts together. The Birmingham Gas Department did considerable business with the Sutherland Meter Company, and it was only due to them to say that they always found the Directors and management eager and willing to listen to any suggestions that those in the department had to make, and that they did their best to meet them in every possible way. This was the spirit which should prevail, if they were to be successful in the gas industry. "We are bound up one with another," added Mr. Rogers. "We, on the selling side, cannot make much progress unless the Directors of firms which supply the gas industry with equipment keep up to date. From what we have seen we must feel, I think, that we have visited a works which is keeping up the best traditions of manufacturing for the gas industry."

Mr. REGINALD CLARRY replied on behalf of the Directors. The gas industry was, he said, one of the few thriving industries that had stood well the test of post-war troubles. This was because it was on a sound foundation, and supplied a definite want of the public which could not be supplied in any other direction. As to meters, he wondered whether sufficient attention was paid to them. He thought every concern—if it could afford it—would be well advised to make an inspection of all its meters. He had known a few instances where this had been done, and the results were astounding. He hoped in the Birmingham area something of the sort would take place, and that the Sutherland Company would receive a large share of the business it would probably be necessary to give out. The Company were progressive, and endeavoured by giving efficiency to maintain the proper prestige of the gas industry. It had been stated that a big strain was put upon meters. There were many meters that had not been seen for twenty years, and personally he could not recollect any other form of apparatus which remained active and correct over that period, without receiving the slightest attention. Since he had left the gas industry, he had been able to get a perspective of gas from another point of view. In addition to seeing it as a stable and necessary industry, he could realize that electricity had an enormous field as well. One entirely in the gas industry was liable to take a more or less prejudiced view of things; but looking at it from a broad aspect, from the position of the man-in-the-street, there was ample room for both. His opinion was—with a distinct leaning to gas—it would be to the advantage of the country if the gas undertakings could also be suppliers of electricity. He was going to attempt, during the next session of Parliament, to bring in a small item of legislation which would make it easier for gas undertakings to supply electricity. This would be all to the advantage of small country districts where there was not room for two separate undertakings. "The gas industry should," he added, "be the paramount suppliers of a public necessity of this kind." [Applause.]

Gasholder Making by Oxy-Acetylene Welding.

Reference to some interesting work involving the application of oxy-acetylene welding, which has been carried out by the various subsidiaries of the Union Carbide and Carbon Corporation, was made by Mr. G. O. Carter, Consulting Engineer of the Linde Air Products Company, in a paper read before the International Acetylene Association at Chicago. Included in this work was the welding of a gasholder, which was allotted to the Linde plant at Columbus. This holder had a tank 53¼ ft. in diameter by 26½ ft. high. It was arranged that the plates should be cut at the rolling mill as nearly as possible to exact size, so as to fit together for butt welding. The method of construction planned was that the bottom plates should be tacked together; an angle curb should be tacked to the circumference of the bottom plates; and the first course should be completely welded to the curb, and the plates welded end to end to establish a complete ring 4½ ft. high and $\frac{5}{16}$ in. thick. Then the bottom was to be welded so as to lock-up stresses into the first ring, and in that way overcome the buckling which occurs when welding unrestricted plates. The principle to be followed when erecting side plates was that all seams were to be made with plates opened at the unwelded end, so that there would be an outlet for stresses. It was soon found, however, that it would be difficult to keep a big crew of welders busy if horizontal seams were so welded, since only one man could weld on one seam at a time. On such seams, therefore, a modification of the plan was necessitated. The first row of sheets was hoisted into position and clamped to the curb. At the beginning, the vertical seams were lined-up by a special clamp, but it was later decided not to clamp the vertical seams while working on the horizontal ones. The best results in tacking were obtained when a large gang of men made the tacks in the seam simultaneously; and this method was adopted as standard practice for the upper four rows of the tank. On the completion of the first ring of plates and the bottom of the tank, this portion was lowered on to a concrete foundation, covered with a layer of sand and cement. The bell of the holder was built by welding at the level of the "walk-round," and lowered as each row of sheets was completed. This procedure permitted the welders to keep steadily at work while the guide rails inside the tank and the bottom rollers of the bell were being attached and adjusted.

SCOTTISH JUNIOR GAS ASSOCIATION.

(WESTERN DISTRICT.)

Visit to Messrs. Jas. Nimmo & Co.'s Coke Ovens at Chryston.

The remarkable expansion in the use of coke-oven gas for town's purposes was probably the cause of the large turn-out of over eighty members of the Western District of the Association, together with several seniors, on the occasion of the visit last Saturday week to Messrs. Jas. Nimmo & Co.'s coke ovens at Chryston. Gas is now being more and more recognized as the most valuable bye-product from coke-ovens, and it is natural that those to whom gas is the primary product should be interested in such a process. Undoubtedly, in the interests of the conservation of the nation's coal resources, the utilization of surplus coke-oven gas for town purposes is most desirable.

Mr. James Macleod, F.I.C., M.I.Chem.E. (Superintendent of the Ovens), and his assistants, Mr. Dickie, Mr. Laidlaw, and Mr. Gray, B.Sc., met the party on their arrival by motors from Glasgow; and they were divided up into groups. Those who wished to see the colliery were taken in charge by Mr. Watson (Colliery Manager) and his assistants, and descended the pit. Various groups then proceeded to the ovens. These are of the Otto-Hilgenstock type, and are complete with direct-recovery bye-product plant and benzole rectification plant.

The ovens are about 33 ft. long by 7 ft. 6 in. high, and expand from 19 in. on the charge to 22¾ in. on the discharge side. The throughput of dross is 60,000 tons per annum. The washed dross is emptied by hydraulic tippers into the receiving hoppers, and thence elevated by a Jeffrey elevator into a Jeffrey crusher. From the crusher the very finely divided dross is elevated into a 300-ton steel storage bunker. All drives are electric.

The blending of the drosses used has been brought to a successful issue. The drosses are emptied at the washer in the required proportion, and the thorough mixing, on which much depends, is thus begun at this point, and continues through the receiving hopper, elevators, and crusher, until the mixed material is delivered into the keel of the charging machine or into the charging bogies, if it is desired to use this method of top or loose charging. The quality of the mixed dross used is illustrated by the following analysis from the works records:

—	Average of Analysis.	Moisture.	Vol. Matter.	Fixed Carbon.	Ash.
		P.Ct.	P.Ct.	P.Ct.	P.Ct.
September . . .	24	9·38	27·38	58·11	5·13
October	22	9 75	26·06	60·38	3·81
November . . .	26	10·00	26·23	59·20	4·57
December . . .	23	10 04	27·05	58·71	4·20

The dross is discharged by side shoots from the bunker into the keel; the successive layers being stamped by a 10-H.P. electrically driven two-legged stamper. The compressed cake of coal weighs approximately 8 tons. The Buchanan combined charging and discharging machine, which is carried on four rails and propelled by a 35-H.P. motor, is traversed in front of the oven to be rammed. The front and back doors are lifted by means of hand cranes, and the ram head, butting against the coke to be discharged, gradually forces it out of the oven. Two speeds may be used in the discharging operation at the discretion of the ram man, who watches both the ammeter, to see that the power used is normal, and the coke to see that it does not rise or jam—the rise of the amperage being an indication of the latter.

The machine then travels forward until the keel carrying the charge of coal is opposite the oven. The keel side is slightly released, to give the compressed cake easy exit, and the base of the keel enters the oven carrying the cake of dross. The discharge door having been closed previously, the door next the keel is now lowered almost down, and the keel is withdrawn, leaving the cake of coal on the sole of the oven. The doors are then luted up, and carbonization proceeds. The coke on its discharge from the oven passes through a cage quencher, where water at about 50 lbs. pressure is driven against it in fine jets. It then falls on a sloping bench, from the horizontal base of which it is forked into trucks; nuts and breeze being separated by hand riddles.

The gas, on leaving the ovens by the ascension-pipes, enters the dry main, and from there passes through air cooling mains to the tar extraction plant. Should the gas be too high in temperature, a stream of liquor from the tar well is pumped counter current, and reduces it to the point aimed at—viz., about 90° C. It then is subjected to the Otto spray for tar extraction; a liquor spray being driven at about 80 lbs. pressure. This drives down the tar vesicles, which coalesce and fall into steel collecting chambers, flowing from there into the outside tar well.

The gas then passes through a static Pelouze and Audouin tar extractor, which further removes tar, and at an average of 69° C. the gas enters the exhausters. These are 110 H.P. each set, and consist of De Laval turbines and Rateau type fans. Forced lubrication is used, and new external air coolers have been lately attached to them, as well as Donkin hydraulic steam regulators and governed steam supply.

The gas next enters the saturators of the direct sulphate plant, which gives no trouble. Probably the reasons why it has not advanced in the gas industry are: (1) Inability to maintain the temperature of the gas above the dew point; (2) faulty circulation of the acid solution in the saturator; and (3) the fear that the illuminating or calorific value of the gas may be adversely affected. The first point is obviously essential, as deposition of condensate in the saturator would prevent salting. The second point is attained at these works by means of Haughton "Regulus" metal pumps in duplicate, driven by a 2-H.P. motor. The third, owing to the comparatively dilute condition of the acid bath, is hardly in evidence at all. The recovery has averaged during the past seven months 32 lbs. per ton carbonized.

The salt is ejected by steam or compressed air from the saturator on to the table, whence it is passed to the centrifugal drier; the Weyman neutralizing process being applied at this point. The gas, now freed from the tar and ammonia, is passed to the water-tube coolers, three in number, where it is cooled and the naphthalene deposited. Each condenser is steamed out once every 24 hours, and the naphthalene run into a shallow settling pond. The cool gas then enters the two benzole washers, about 50 ft. high and 7 ft. diameter, where streams of wash oil descending in a fine film over wooden grids extract the benzole. The cooled gas, now at about 17° to 18° C., enters the distributing main under the oven battery, and is consumed in burners under the vertical flues of each oven; there being fifteen burners to each heating wall. The products of combustion are collected in a horizontal flue, descend under the oven sole, and pass to the waste-gas flue. To the last named, it is hoped soon to attach modern waste heat boilers.

The benzolized oil from the benzole scrubber enters a heat exchanger on the top of the first or crude benzole condenser, and from there flows to the Simon-Carves heater, where it rises to about 120° C. It then passes into the primary vertical still, and is heated by steam. The vapours pass through the heat exchanger to the condenser and separator, where crude benzole and water are separated. The crude benzole is re-distilled in horizontal stills, and the condensate washed in acid and alkali, and finally re-distilled with the production of motor benzole—solvent and heavy naphtha and naphthalene being bye-products. The plant is by the Power Gas Corporation, and is of a very complete character.

After the inspection, the visitors were entertained to tea by the firm. In the unavoidable absence of the President, Mr. W. J. Lennox (Past-President) cordially thanked Messrs. Jas. Nimmo & Co. for their hospitality, and also conveyed the thanks of the members to Mr. Macleod and his assistants for the courtesy with which they had received the visitors.

This concluded the proceedings.

Water-Gas Generator Linings.

The Committee on Refractories of the American Gas Association had for their main object last year the finding of a refractory material for the lining of a water-gas generator which, while fulfilling the normal requirements of refractoriness and resistance to abrasion, would possess the additional quality that slag would not adhere to it—thus eliminating the necessity for an expensive, laborious, and destructive operation. In the 1921 report, the use of magnesite, chromite, mica schist, a special fireclay refractory, and two types of silicon carbide brick were discussed; and the only favourable reports were sent in by one of the users of silicon carbide. Since that time reports have been received upon zirkite and alundum (both of which gave negative results), and various types of silicon carbide bricks. With the exception of the silicon carbide brick, about which there appears to be a slight division of opinion, the Committee do not feel that the extra cost of special refractories for use in generator linings is warranted, as they do not result in a sufficiently greater life. Of four reports referring to solid blocks of silicon carbide, two indicated increased production of gas and decreased cost of cleaning; while the writers of the others thought (though they found a small decreased cost of cleaning when beginning the use of the material) the extra installation cost had not been warranted by the benefits received. Mr. W. H. Fulweiler, of Philadelphia (the Chairman of the Committee), says his own experience leads him to believe there is some indication that the higher alumina content refractories give slightly better service. So far, however, as he is aware, there are only two new developments in the lining question that are of much promise. One of these has to do with the substitution of a water-cooled bosch, thus eliminating refractories entirely in the clinker zone, while the other attempts to do practically the same thing by using an air-cooled refractory built of hollow silicon carbide blocks. Both these experiments are based on the general principle that slag will not adhere to a surface that is kept below its melting point.

Midland Junior Gas Association.—At a meeting in the Birmingham Council House next Friday evening, Feb. 8, at 6.30, Mr. W. A. Twine, A.I.C., M.I.Mech.E., Superintendent of Chemical Plant, Birmingham Gas Department, will lecture on "Chemical Engineering in Modern Gas-Works Practice." An informal meeting has been arranged for Feb. 21, at 6.15 p.m., when paperettes will be submitted by Mr. F. Sylvester (West Bromwich) on "Vertical Retorts," and Mr. H. Percy (Birmingham) on "Consumers' Complaints; their Cause and Treatment."

CORRESPONDENCE.

[*We are not responsible for opinions expressed by Correspondents.*]

Gas Consumption in a Private House.

SIR,—I was much interested in the article under the above heading in the "JOURNAL" of Jan. 16. Perhaps my own experience will be of interest, as my house is entirely gas, although I am not able to furnish details of the monthly consumptions as given in your communication. It would be interesting to know how much coal is used in the kitchen range of the house in question.

With regard to the details of gas consumption, criticism may be directed to two points therein: The consumption of the gas-iron is given as 8000 c.ft., or (say) 160 c.ft. per week; but the average domestic iron should not take more than 8 c.ft. an hour, and 20 hours of ironing per week would seem a lot for an establishment such as the one under consideration. The consumption for lighting purposes seems heavy, although there are two families living in the house. For ordinary purposes I find that a room 20 ft. by 15 ft. can be lit with one full-sized burner.

My own house has the following appliances: 18 gas-points with burners of various sizes (five of these are fitted with pneumatic switches and pilot lights); gas-fires in four bedrooms; radiator in bathroom; gas-fires in two sitting-rooms; gas-circulator and gas-fire in kitchen; and cooker in scullery.

The following table shows the quarterly consumption in cubic feet and therms, and the corresponding cost at 8d. per therm with 560 B.Th.U. gas.

—	C.Ft.	Therms.	Cost at 8d. per Therm.
			£ s. d.
March	60,000	336	11 4 0
June	40,000	224	7 9 4
September	10,000	56	1 17 4
December	45,000	252	8 8 0
Total	155,000	868	£28 18 8

The following table gives the cost of the various services estimated as nearly as possible.

—	C.Ft.	Therms.	Cost.
			£ s. d.
Cooking and part hot water .	44,000	246	8 4 0
Circulator	14,000	79	2 12 8
Fires	75,000	420	14 0 0
Lighting	17,000	95	3 3 4
Ironing and pilots	5,000	28	0 18 8
	155,000	868	£28 18 8

With regard to the gas-fires, it is estimated that about 63,000 c.ft. is consumed in one of the sitting-rooms, which has one fire in constant use during the cold months from about noon onwards, and 12,000 c.ft. for occasional use in bedrooms, kitchen, bathroom, &c.

It is seen from the above table that the services due to cooking, circulator, and fires cost £24 16s. 8d., and represent about 9·2 tons of coal at 54s., leaving £4 2s. for gas for lighting and ironing. We have four in the family.

I think it would be useful if other contributors would give you their results.

Feb. 2, 1924. "SOUTH LONDON."

Reduction of Price at Malton.—The Malton Gas Company have reduced the price of gas from 4s. to 3s. 9d. per 1000 c.ft.

City of Durham Gas Company.—The annual report and accounts of the Company show an available balance of £3996, after deducting the amount of the interim dividend. The Directors recommend a half-yearly dividend of 5 p.ct. on the original capital and 3½ p.ct. on the additional capital. During the past year a considerable amount of work in connection with the manufacturing plant, which had to stand over during the war, was proceeded with, and further alterations were contemplated. Old mains have been renewed, and it is hoped to complete the most pressing portions of the work during the coming year. The Directors have reduced the price of gas from the December reading of meters from 9·5d. to 9d. per therm, or from 3s. 11½d. to 3s. 9d. per 1000 c.ft., with a corresponding reduction of ½d. per therm, or 2½d. per 1000 c.ft., in the outer area.

Lecture on Gas to Insurance Students.—Mr. Charles Roper (Mains Superintendent to the Bradford City Gas Department), Past-President and until this year Hon. Treasurer of the Yorkshire Junior Gas Association, gave a lantern lecture on gas supply, on Jan. 30, to the members of the Bradford Insurance Institute. The lecture was arranged in conjunction with a series being given specially with a view to enabling the younger members to secure, for examination purposes, a working knowledge of industries. Mr. R. A. Dickson presided. Mr. Roper briefly outlined the history of the first use of gas and its subsequent great developments, and mentioned that it was just over a hundred years since gas was first introduced into Bradford. He went on to deal with the earliest forms of gas-works, and particularly the retorts and the purifying and bye-product processes, and compared those earlier methods with the modern retorts, condensers, scrubbers, tar-extractors, washers, &c. The address was illustrated by seventy slides.

REGISTER OF PATENTS.

Purification of Gases—A Series of Patents.

KOPPERS COMPANY, of Pittsburg, Pennsylvania.

No. 190,115 (No. 26,701 of Oct. 3, 1922; Convention date, Dec. 8, 1921).

This invention relates to the removal of hydrogen sulphide and other impurities such as carbon dioxide and hydrocyanic acid from gases and certain liquids containing them. The process consists of passing the gas into contact with a non-volatile alkali carbonate, bicarbonate, hydrate, or mixture, in solution, to absorb hydrogen sulphide and carbon dioxide from the gas, and then heating the solution under vacuum in a separate vessel, to expel the bulk of the absorbed hydrogen sulphide. The invention thus provides a process which proceeds continuously in one set of apparatus, and which does not introduce foreign matter into the H_2S or other constituent being treated. When the gas contains more than a certain proportion of CO_2, this also can be removed, in the same cycle of operations, by employing a second heating stage. The process is especially applicable for treating gases containing both CO_2 and H_2S—*e.g.*, town gas, water gas, coke-oven gas, &c.—in that any CO_2 absorbed is employed in a regeneration stage as a factor contributing to the removal and recovery of the absorbed H_2S. Any HCN in the gas is, for the most part, removed by the process. The patentees claim that it works efficiently, notwithstanding variation in the amounts and relative proportions of CO_2 and H_2S.

When gas containing CO_2, H_2S, and HCN is brought into contact with Na_2CO_3, the following reactions occur:

$$Na_2CO_3 + CO_2 + H_2O = 2\,NaHCO_3$$
$$Na_2CO_3 + H_2S = NaHCO_3 + NaHS$$
$$Na_2CO_3 + HCN = NaHCO_3 + NaCN$$

The resulting solution is heated, first under vacuum for the removal of the bulk of H_2S and some of the CO_2, and then at a higher pressure for the removal of the rest of the CO_2. The decomposition of the NaHS is accelerated by the presence of $NaHCO_3$:

$$NaHS + NaHCO_3 = Na_2CO_3 + H_2S$$

It is therefore desirable to keep the maximum amount of $NaHCO_3$ in the solution while the NaHS is being decomposed. Hence, the decomposition of the latter should be performed first.

An apparatus is described in which the gas containing CO_2 and H_2S enters a scrubber—preferably of the bell-washer type, though a mechanical scrubber may be employed—where it meets the absorbent. The conditions are such that the solution, as it enters the scrubber, contains some $NaHCO_3$. In treating coke-oven gas, for example, good results are obtained by employing a solution, the total alkalinity of which is equivalent to from 15 to 20 p.ct. of Na_2CO_3. The content of $NaHCO_3$ in such a solution is preferably between 4 and 5·5 p.ct. The temperature is 40° C.; and it is desirable to cool the gas to this temperature before it enters the scrubber. The solution discharges from the bottom of the scrubber into a tank. The subsequent treatment depends on the quantity to be handled, and may be intermittent or continuous. The description set out by the patentees relates to an intermittent plant. In this, the heating is performed in an evaporator adapted to pressure or vacuum. The heating is effected by steam coils; but direct heat may also be used. The operations in the evaporator have the effect of concentrating the solution. This may be between 15 and 20 p.ct. It is therefore necessary to add water to restore the solution to the requisite alkalinity. Losses of alkali in the solution, either of a mechanical nature or caused by the formation of such substances as thiocyanates, may be replenished by the addition of $NaHCO_3$ or Na_2CO_3. The equivalent potassium compounds may also be employed.

No. 190,116 (No. 26,702 of Oct. 3, 1922).

This invention consists in removing the bulk of the H_2S and other impurities from an ammonia-free gas—*e.g.*, a coke-oven gas as delivered from the benzole scrubbers or final coolers—by passing the gas into a solution of an alkali absorbent, and thereafter removing the residue of the impurities from the purified gas by passing it into contact with at least a second solution of alkali. The absorbent discharged from each stage is separately regenerated, in the manner described above. In a two-stage process the first chamber is known as the "absorber," the second as the "actifier;" and it is the latter which removes the last traces of H_2S.

No. 190,117 (No. 26,708 of Oct. 3, 1922).

This invention for the removal of H_2S, &c., from gas consists of a single tower having separate compartments for the absorption and aeration steps, and connections between these compartments adapted to permit continuous circulation of the liquid from one to the other with avoidance of stagnation of impurity-laden liquid. The apparatus is specially useful for purifying gas in accordance with the process described in patent No. 170,572, by which the gas is brought into contact with Na_2CO_3 and the liquid regenerated. In this apparatus the upper chamber is the absorber, and the lower one the regenerator. The patentees claim for this a reduction in volume of the solution required and in the number of parts, greater simplicity and economy in construction, and a considerable reduction of the space required.

No. 190,118 (No. 26,721 of Oct. 3, 1922).

This invention is more particularly concerned with the H_2S aspect of the process, and consists in employing the combination of steps of treating the gas with an aqueous suspension containing a compound of a metal of the alkaline earths, subjecting the resulting liquid to heat and aeration, to expel H_2S and regenerate the suspension, and returning the regenerated fluid to the absorption step. The process is suitable for gases which contain only moderate amounts of CO_2 in proportion to H_2S. The H_2S is recovered in a concentrated form, so that it

may be employed, for example, for the manufacture of H_2SO_4. In the specification full details of the chemical reactions of the process are given when $Mg(OH)_2$ is used as the absorbing reagent.

No. 190,119 (No. 26,730 of Oct. 3, 1922).

According to this process the gas is passed into contact with an alkaline solution to absorb H_2S. The solution is then brought into contact with a bed of iron compound capable of transferring sulphur from the alkali to the iron. After removal of the rejuvenated liquor, the impurity-charged bed is subjected to aeration, which restores it to a state for effecting further absorption.

No. 204,058 (No. 23,002 of Oct. 3, 1922).

The apparatus according to this invention is for the removal of H_2S by the process described in specification No. 190,116, but consists of a plurality of individual absorbers, actifiers co-operating with the respective absorbers, means for maintaining a continuous circulation of liquid back and forth between each absorber and its corresponding actifier, and gas circulation means embodying controlling devices for alternately effecting circulation of the gas through the absorbers in series or in parallel.

No. 209,378 (No. 27,676 of Oct. 3, 1922).

The invention is a modification of that described and claimed in specification No. 190,119. Instead of subjecting the impurity-charged bed of iron compound to aeration, the process is operated until the accumulation of sulphur in the bed becomes undesirably great, when the iron compound can be discarded or regenerated in any desired way.

Controlling the Proportion by Volume of Two Gases Delivered Simultaneously.—No. 208,448.

M'ISAAC, J., of Glasgow.

No. 6138; March 2, 1923.

This invention relates to apparatus for controlling the proportion by volume of two gases delivered simultaneously, and is chiefly applicable for ensuring that when gas and air are being delivered to the point of combustion at pressures above that of the atmosphere, the mixture burnt shall remain substantially constant, notwithstanding variations of pressure at which either is supplied.

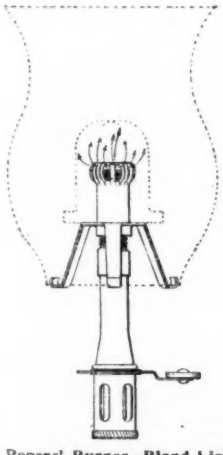
The invention consists in a combination of two governors, of the diaphragm type, of which the diaphragms are so interconnected that the movement of one that opens its valve causes the other to move to close its valve. By adjusting the ratio between the areas of the diaphragms to correspond with the ratio of the normal pressures at which the gas and the air are supplied, substantially constant volumes pass through the governors in unit time.

When the proportion is to be varied, one or other of the valves, as the case may be, must be moved further from or nearer to its seat; and in order that this may be done while the gases are flowing, the connection between the valve spindles is provided with a device by which each valve may be adjusted separately. When the proportion by volume is to remain constant while the volume of the mixture is to be varied, both valves must be simultaneously moved nearer to or further from their seats; and a device for this purpose is provided in connection between the valve spindles.

Incandescent Gas-Burners.—No. 208,946.

ROGERS, R. J., of Birmingham, and THE BLAND LIGHT SYNDICATE, LTD., of Little Trinity Lane, E.C. 4.

No. 5095; Feb. 21, 1923.



Rogers' Burner—Bland Light Syndicate.

This invention relates to incandescent burners of the type wherein an internally threaded cap, provided with openings round the sides, is screwed on to the upper end of a mixing chamber.

The illustration shows a burner in elevation; and it will be seen that the passage of gaseous mixture through the openings is adapted to be adjusted by varying the distance between the top of the mixing chamber and the top of the cap by screwing the cap up or down on the mixing chamber. The cap may be provided with a bulged part in which the side openings or perforations are formed. The cap preferably has also a top opening to direct a flame to the centre of the mantle, which is supported by a gallery attached to the cap; the gallery also serving to hold a globe, if required.

Coin-Change Meters.—No. 208,802.

MAJOR, P. F. E., of Shepherd's Bush, MILES, G. H., and SMITH, C. C., both of Twickenham.

No. 26,291; Sept. 29, 1922.

This invention relates to change-giving prepayment meters, and provides an arrangement for indicating when the coin tube is full or contains sufficient coins to enable full change to be given.

This is effected by a lever pivoted horizontally so that a plate at the extremity of its shorter arm projects into the coin tube. The other arm carries a lettered plate which normally is not visible. When the coin tube fills up, however, the coins press on the plate and rock the lever so that the indicator is visible through a sight hole in the casing.

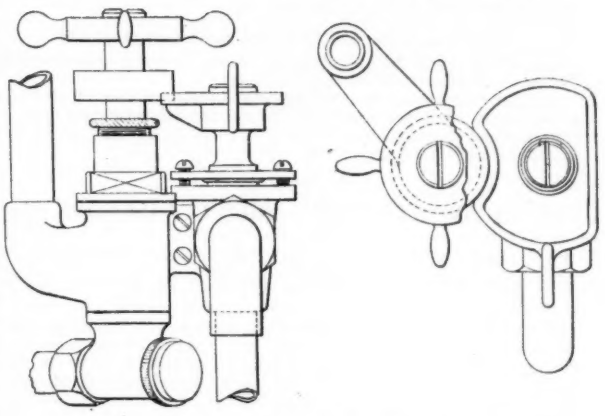
Geyser Taps.—No. 209,223.

SUGG, P. H., and SUGG, W., & CO., LTD., both of Chapter Street, S.W. 1.

No. 28,602; Oct. 20, 1922.

This invention relates to gas and water taps applicable for use with geysers and the like, and more especially to improved means for interlocking the taps.

The elevation and plan which we reproduce show that the patentees employ a water tap of the usual screw-down type and a rotatable gas plug cock, also of usual form. The spindles of the taps are arranged parallel to one another, and upon the gas plug is a cam or disc adapted to engage an adjustable collar on the spindle of the water tap; the cam being so formed as to prevent the gas tap from being turned on until the water has been turned on a certain amount, and to prevent the water tap from being shut until the gas has been turned off.



Interlocking Geyser Taps—Messrs. Sugg & Co., Ltd.

The collar is adjustably mounted on the water tap in order that the minimum necessary opening of the tap can be set to suit the pressure of the water. It will be seen that the gas tap will be prevented from being opened until after the water tap has been turned on, even when the valve of the water tap wears, the result of such wear being that the water tap will have to be turned on slightly more before the gas tap is free to turn.

Underneath the valve on the water tap is provided a projection having a certain amount of clearance between it and the bore of the water inlet to the valve, so that when the water tap is first opened only a small amount of water will pass. The end of the projection may be coned or rounded. The water inlet to the valve may be provided with a grub screw or the like, having a coned or rounded end, by means of which the area of the water passage to the tap can be varied to suit the pressure of the water.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for Jan. 30.]

Nos. 1593 to 2164.

BESSON, F.—"Gas-producers for internal-combustion engines, &c." No. 1756.
DODGE, H. H.—"Low-pressure gas-burners." No. 1668.
LECARME, L.—See Besson, F. No. 1756.
LEGGETT, A.—"Apparatus for washing gas, &c." No. 2142.
MOLDENHAUER, E.—"Automatic apparatus for controlling flow of gas, &c." No. 1882.
SUGG, P. H.—"Gas-heated boilers." No. 2071.
SUGG & Co., LTD., W.—See Sugg, P. H. No. 2071.
TOWNSON, T. R.—"Gas-tap, &c." No. 1715.
WOODWARD, H. S.—"Adjuster for regulating supply of gas to burner." No. 1610.

The annual dinner of the employees and officials of Messrs. George Wilson Gas Meters, Ltd., Branch Works, Nos. 46 and 47, Auckland Street, London, S.E., was held on Friday, Jan. 25, at the Elephant and Castle, Vauxhall. It was regretted by everybody that Mr. J. H. Wilson (Managing-Director) was unable to be present, owing to indisposition. Mr. A. C. Frost (London Manager) was invited to the chair, and, in reply to the toast "Success to the Firm," stated that, although he had unfortunately been away from the trade for a few years, he was surprised to find how well gas and its kindred industry had kept their ends up during the national depression, and that the firm had, with marked effort, held their own. He realized that, through the introduction of the meter with patent auto valve, and its growing popularity, and the possibilities of the therm indicator, there was a hopeful outlook for 1924. On the motion of the employees, a letter of good wishes was sent to Mr. Wilson, signed by all present. The dinner was succeeded by a musical evening.

MISCELLANEOUS NEWS.

GAS REGULATION ACT APPLICATIONS.

The following further notices have appeared in the "London Gazette" with regard to applications to the Board of Trade for Orders under the Gas Regulation Act.

DECLARATIONS OF CALORIFIC VALUE.

Alton Gas and Coke Company, Ltd.—475 B.Th.U. (Feb. 1.)
Birstall Urban District Council.—500 B.Th.U. (April 1.)
Porthcawl Urban District Council.—425 B.Th.U. (March 21.)
Scunthorpe and Frodingham Urban District Council.—375 B.Th.U. (March 31.)

GAS REGULATION ACT ORDERS.

We have received from the Director of Gas Administration a copy of the following further Order made by the Board of Trade under section 1 of the Gas Regulation Act.

Ware Gas Light and Coal and Coke Company, Ltd.

After the declared date, the standard price in respect of gas supplied by the undertakers shall be 15d. per therm.

For the purpose of ascertaining the authorized rate of dividend, any price charged per 1000 c.ft. before the declared date shall be rendered into the equivalent price per therm by dividing it by four-and-four-fifths. (Jan. 28.)

LONDON COUNTY COUNCIL AND THE VALUATION BILL.

The Local Government Committee of the London County Council have considered the draft Rating and Valuation Bill, and reported at length upon its provisions.

In the second part of the Bill—that dealing with valuation—there are clauses providing that in London, as in the rest of the country, the valuation of special properties shall be transferred from the local authorities and assessment committees to a "Central Valuation Authority." The importance of the proposal may, the Committee say, be judged by the magnitude of the rateable values of special properties in London—these rateable values amounting to some £4,500,000, of which gas-works account for £627,504. The principle of central valuation of special properties is, in the Committee's opinion, a sound one. The present procedure involves a valuation, for example, of a tramway system over and over again by different valuers appointed by different assessment committees; and there should, they think, be considerable economy in making a single valuation for the whole undertaking and an apportionment of the resulting rateable value between the various rating areas concerned. Incidentally, it would remove the difficulty of "*minus* valuations," and the consequent danger lest the aggregate of the parochial valuations should amount to more than the total annual value of the whole undertaking.

PUBLIC GAS SUPPLY IN LANARKSHIRE.

Further Acquisitions of Gas-Works.

At the monthly meeting of the Middle Ward District Committee of the County of Lanark, the Clerk (Mr. W. E. Whyte) reported that, as directed, further efforts had been made to come to an agreement with the Blantyre Gas Company with regard to the proposed acquisition of their undertaking by the County Council, but without result. Accordingly, there had now been served upon the Company a statutory notice of the intention of the County Authorities to exercise the powers of the Burghs Gas Supply (Scotland) Act, 1876, as amended, in the Blantyre district.

It was reported that, with regard to the acquisition of the Carfin, Newarthill, Cleland, and District Gas-Works, an arrangement had practically been concluded with the Motherwell and Wishaw Town Council for the transfer of the undertaking to the County Authorities at the price fixed by the arbiters in 1915, *plus* the value of pipes and works provided by the Town Council. The Clerk reported that, following upon the arrangement for this purchase, it would be necessary, in order to supplement and improve the present gas supply in a portion of the Holytown district, and also in the Newarthill and the Cleland and Omoa districts, to lay 8-in. high-pressure mains at an estimated cost of £4000. It was agreed that this extension should be carried out; and as the work would be suitable for meeting unemployment, it was further agreed that the necessary applications for grants, &c., should be made.

The Committee have now unanimously approved of the suggestions put forward by Mr. Whyte, the Clerk, in the matter of the linking-up of the Uddingston Gas-Works with the Cambuslang Gas-Works, and that the work should be undertaken with the least possible delay. It was also agreed that the execution of the scheme should be undertaken as a relief work in co-operation with the Parish Councils interested; and the Clerk was authorized to apply for State assistance.

Glasgow and Smokeless Fuel Manufacture.—It was agreed last week by the Glasgow Corporation Gas Sub-Committee to proceed immediately with the installation of a five-unit battery of Maclaurin producers for the manufacture of smokeless fuel at the Dalmarnock Gas-Works. The Committee have accepted estimates for the erection of the plant, which will carbonize 35,000 tons of coal per annum.

THE GAS FUND.

Accounts for the Year Ended March 31, 1923.

Section 7 of the Gas Regulation Act of 1920 established a fund (to be called the Gas Fund) for the payment of the salaries, remuneration, pensions, and gratuities of the Chief Gas Examiner and the Gas Referees and their assistants; and expenses of the Chief Gas Examiner and the Gas Referees in the execution of their duties or powers under the Act; and any expenses of the Board of Trade which, in the opinion of the Treasury, are directly attributable to the execution of their powers and duties under the Act. Any undertakers with respect to whom an Order under the Act has been made shall, on or before April 1 in each year, pay to the fund a contribution not being at the rate of more than 3s. for each million c.ft. of gas sold by them in the preceding year. As stated on p. 212 of the "JOURNAL" for Jan. 23, the rate of contribution for 1924 is to be 2s. per million c.ft.

The accounts for the year ended March 31, 1923, have now been issued, and are procurable from H.M. Stationery Office, Imperial House, Kingsway, London, W.C., and Branches, at the price of 3d. net, postage extra. They show contributions by gas undertakers amounting to £18,980, and a deficit on the fund at the date named of £1413. Repayments to the Board of Trade were: Salaries, travelling and incidental expenses, £15,323; expenses of committees, inquiries, and examinations, £100; indirect expenses, legal expenses, &c., £1424; and pension charges, £779—*less* fees levied under the Act £2535, and recovered on account of expenses incurred during the year £113. At the commencement of the year with which the accounts deal, the net deficit on the fund was £5177.

INSTITUTION OF PUBLIC LIGHTING ENGINEERS AND SUPERINTENDENTS.

Mention was made in last week's "JOURNAL" of the fact that the first meeting of the new Institution of Public Lighting Engineers and Superintendents—the Hon. Secretary and Treasurer (*pro tem.*) of which is Mr. W. J. Liberty, Public Lighting Office, Corporation of London, Guildhall, E.C.—is to be held on Feb. 15; and we now give details of the interesting programme arranged for the occasion.

This Institution, which was formed in September last, has been inaugurated to fill the want of an organization for all those who are directly concerned with the practical side of public street lighting—public lighting engineers and superintendents. There has, it is pointed out, been no association or institution where such officers could, by the reading of papers and discussions thereon, elucidate the infinite number of problems which present themselves day by day. By visits of inspection to various towns, and to factories and works where appliances in connection with street lighting are manufactured, they could make themselves acquainted with the best systems of gas, electric, and other forms of lighting, and become so informed as to be able to advise their authorities as to what are the best apparatus and methods to adopt, and those which will give the greatest illumination with the least expenditure.

The circular letter accompanying the programme says it is generally recognized that public street lighting in Great Britain is, in many instances, inefficient and too costly for the results obtained. This is due in large measure to the fact that lighting engineers and superintendents, who are responsible, and their chairmen have had no means of coming together, as have those responsible for the supervision and control of other municipal departments. In almost the majority of towns the public street lighting is in the hands of the municipal engineer or surveyor, who is the lighting superintendent. In some cases the chief constable, in others the gas engineer or the electrical engineer, has the responsibility for the public lighting; and to such the Institution (as to those independently appointed superintendents in large towns) will be of infinite service.

The subscription for members or associate members is 10s. 6d. per annum. The first conference of the Institution is to be held on Friday, Feb. 15, at 2 p.m., in the Court Room of the Holborn Borough Council Offices, No. 157, High Holborn (opposite the British Museum Station of the Central London Railway), and a small exhibition of some of the most modern street-lighting appliances will be held in connection with the meeting.

The first President (Mr. S. B. Langlands, Public Lighting Superintendent of the City of Glasgow) will deliver his Presidential Address, and a short paper on "Street Lighting" will afterwards be submitted by Mr. W. J. Liberty (Public Lighting Superintendent of the City of London). In connection with the latter, there will be a demonstration of the centrally suspended high-power electric and gas lamps in the City, and an inspection of the public lighting of the Metropolis.

The programme will be as follows:

2 p.m. Small exhibition of modern apparatus and lamps, electric and gas, in the annexe to the Holborn Council Offices.
3 p.m. Conference in the Court Room of the Holborn Borough Council. Reception of members and delegates by Mr. S. B. Langlands, the President. Inaugural address by the President. Short Paper, "Public Street Lighting in the City of London," by Mr. W. J. Liberty, Public Lighting Superintendent.
4.30 p.m. Tea, coffee, and light refreshments.
5.30 p.m. Inspection of lighting in the City of London. Demonstration of the centrally-suspended electric and high-power gas lamps, and afterwards an inspection of public lighting in the West End of London.

The Northam, Appledore, and District Gas Company, Ltd., was registered on the 29th ult., with a capital of £12,000 in £1 shares (6000 of which are 6 p.ct. cumulative preference shares). The office is at Greysands, Watertown, Northam, Devon.

THE GAS LIGHT AND COKE COMPANY.

Ordinary General Meeting.

The Two Hundred and Seventeenth Ordinary General Meeting of the Proprietors was held last Friday, at Caxton Hall, Westminster—Mr. D. MILNE WATSON (the Governor) presiding.

The SECRETARY (Mr. W. L. Galbraith) read the notice convening the meeting; and the report and accounts were taken as read.

THE GOVERNOR'S ADDRESS.

The GOVERNOR: You will, no doubt, wonder why the meeting this year is being held at the Caxton Hall, instead of at Horseferry Road, as has been our custom. The reason is that we are making considerable alterations at our Head Office, in order to bring our offices and showrooms more up to date, and it is therefore impossible to hold our meeting there this year. Before passing on to other matters, I would like to refer to the speed with which the accounts for the year have been got out. We are holding our meeting on the first day of February—the earliest possible date. This promptitude is due to the excellent work and organization of the Accountant's and other departments concerned.

SATISFACTORY INCREASE IN BUSINESS.

With regard to the year that is just ended, the business of the Company has been most satisfactory, especially considering the state of depression in trade through which the country has been passing. The sale of gas shows an increase of 5 p.ct., which, I am sure you will agree with me, is very gratifying, particularly when it is borne in mind that this comes upon the top of an increase of 8 p.ct. in 1922. It should be remembered that the greater the business grows, the more difficult it is to keep up the same percentage of increase. Great credit is due to the Gas Sales Department for the energetic and enthusiastic way in which they have pushed business during the past year. No amount of organization and push, however, would sell gas, if it were not that we have a good article to sell. When one reads the remarks that are sometimes made about the gas industry, one might be tempted to think that its days were numbered, and that our heritage was about to fall into the hands of the electricians. In their case, no doubt, the wish is father to the thought. I think you will agree with me, however, that there are no signs of decrepitude at the present moment in this great Company.

A STRIKING COMPARISON.

In this connection, it is worth while putting on record the fact that the Gas Light and Coke Company alone produce approximately in a year as much energy (light, heat, and power) as is produced in the form of electricity by the whole of the electrical undertakings in Great Britain. [Applause.] I think this will cause a good deal of astonishment to people in the electrical world, as well as to many persons in the gas industry.

ELECTRIFICATION INVOLVES WASTE AND MISUSE OF COAL.

There is another most important point which I would like to make while dealing with this question, and that is that if the Gas Light and Coke Company were to be swept out of existence and to be replaced by an electrical undertaking, that electrical undertaking would require to use at least 3 million tons of coal, instead of the 2 millions we use. There is also this great advantage in favour of gas, that whereas an electrical undertaking in the production of electricity would completely use up the 3 million tons of coal, the Gas Company, having treated the 2 million tons of coal and obtained the gas, would still have remaining 1¼ million tons of coke and breeze, 19 to 20 million gallons of tar, and a large quantity of ammonia. The coke is available for other industries and domestic purposes, and, being a smokeless fuel, helps very materially to improve the atmosphere of our city. The tar produces materials for dressing the surfaces of roads, dyestuffs, creosote for pickling timber, benzole spirit for motors, and many other things.

CONSERVING OUR COAL SUPPLIES.

From ammoniacal liquor is produced sulphate of ammonia, a nitrogenous fertilizer second to none in the world. The Gas Light and Coke Company, therefore, together with the rest of the industry, are not only serving their own day and generation well, but are safeguarding the future of the country by conserving to such a remarkable degree its coal supply. Our coal deposits are by no means unlimited, and it is upon them that the continuation of our prosperity as a nation depends. From this it will be seen what an important part gas plays in the life of the community. All these services performed by the gas industry are apt to be forgotten by the people who wax eloquent as to electricity and its future. We have no desire to deny the many and great uses for electricity, but we do not want the public to lose sight of the outstanding merits of our older, but none the less youthful and vigorous, industry. As I have said before from this chair, there is plenty of scope for us both. ["Hear, hear."]

REDUCTIONS IN PRICE.

Turning now to the money side. Owing to the lower prices charged for gas during the year—namely, 10d., 9·2d., and 8·6d. per therm (or per 1000 c.ft. 4s. 2d., 3s. 10d., and 3s. 7d.)—the revenue has decreased by £1,300,000; but, on the other hand, there has been an increase in the profit derived from residual products—coke and breeze about £200,000, tar £200,000, and ammoniacal liquor £70,000. On the expenditure side, although we have used more coal and oil, we have saved under these headings £260,000, as we were very fortunate last year in buying our coal before the rise in price took place. There is also a reduced expenditure of £120,000 on repairs and maintenance of works and plant. The expenditure on the distribution of gas has increased somewhat, but this is all to the good, as it indicates growth of business and care and attention to the wants of the consumers of gas.

EXPENDITURE ON EXPANSION.

With regard to the capital account, we have spent £32,000 on land, chiefly for the purpose of building new showrooms which are urgently needed in several parts of London; there has also been a large expenditure on new and additional mains and service pipes, meters, and stoves. This is due to the expansion of our business, and is a sign of the ever-increasing appreciation of gas by the public. It is all business-getting expenditure. Against this capital expenditure, there is a credit of £52,000 for depreciation of stoves, and of £84,000 as representing the value of plant which has either been demolished or become obsolete. The net increase in the capital expenditure for the year was therefore £178,000.

INCREASED DIVIDEND.

The Directors declared a dividend in respect of the June half-year of £5 4s. p.ct. per annum on the ordinary stock, and they recommend to-day a dividend of £5 6s. 8d. p.ct. per annum and the placing of a sum of £11,000 to the reserve fund. There is available a balance of £825,000 to the credit of the net revenue account, so that after paying the dividend of £5 6s. 8d., placing £11,000 to the reserve fund, and contributing £20,000 to the redemption fund (according to our Acts), together with the dividends on the preference and maximum stocks, there will be a balance of £227,000 to be carried forward, as against a balance of £244,000 at this time last year. In the balance-sheet you will notice that the Company's investments show a large increase. Compared with the previous year, the Company were in possession on Dec. 31 last of a larger amount of working capital to the net extent of half-a-million pounds. The reason for this was mainly the increased figure on the debit side of the balance-sheet representing "amounts owing to tradesmen and others." With regard to this item, an unusually large sum was owing on this occasion to the Inland Revenue in respect of the accounts for the year 1922, upon which the assessment for the current fiscal year is made.

ALLEVIATING UNEMPLOYMENT.

Furthermore, in order to alleviate unemployment, the Company had undertaken at the request of the Government to expedite certain reconstructional work that would in the ordinary way have been carried out at a later date. As this work had been put into commission, the Directors felt that an attempt should be made to provide to some extent for the large expenditure involved. The amount which they were enabled to set aside, therefore, appears under the heading referred to.

REVISION OF STANDARD PRICE.

The year has been a very important one for the Company in many ways. One of the outstanding events has been the revision of the standard price. In August last the London County Council gave notice, under the Gas Regulation Act of 1920, of an application to the Board of Trade to hold an inquiry for the purpose of revising the Company's standard price. The standard price had been fixed in March, 1921, at 15·2d., at a time when the cost of raw materials, labour, &c., was much higher than at present. As you are aware, the Directors felt, and the shareholders agreed, last year that it would have been unwise to pay dividends at rates which could be regarded as excessive, considering that this is a public utility undertaking, and that the wiser policy was to pay a moderate dividend, which could be maintained. In these circumstances, the Company could not resent the application of the London County Council for the revision of the sliding-scale, for it is better in every way that we should work under a sliding-scale which is a real regulator of the dividends payable on the ordinary stock. The inquiry was duly held in November. The London County Council suggested a new standard price of 10·8d., and the Company asked for 11·4d. The Board of Trade finally decided that the figure should be 11d.

HOW THE SLIDING-SCALE WORKS.

As there seems to be some misconception as to what a standard price is, I may say, for the benefit of those who are not versed in these matters, that the standard price is a price fixed by the Board of Trade at which the Company are entitled to pay a 4 p.ct. dividend. This 4 p.ct. dividend is increased or decreased by 2s. 8d. p.ct. as the price of gas falls or rises from the standard price by each 0·2d., or one-fifth of a penny, per therm. Under the new standard price of 11d., the Company will be entitled to pay, with its present selling price of 8·6d., a dividend of £5 6s. 8d. This reduction in the standard price seems to have been understood by some persons as indicating a reduction in the selling price of gas, whereas it has nothing to do with the selling price, except in so far as it limits the dividend payable. When their standard price was fixed at 15·2d. per therm, the Company were selling gas at 14d., and at the time when the revision took place in December last the Company were selling gas at 8·6d. per therm; so you will see that the revision of the standard price had nothing to do with the great reduction in the selling price from 14d. to 8·6d. It is in every way a good thing for the Company and the shareholders that this question of revision is now settled, so that all concerned will know exactly where they stand with regard to the price of gas and dividend.

PRICE OF GAS RELATIVELY LOW.

With reference to the price of gas, it is right to point out for the general information of the public that, whereas the cost of most of the raw materials we use is up nearly 100 p.ct., and in some cases even more, as compared with pre-war cost, the increase in the price of gas to-day over 1914 is only about half this figure. The present cost of living is officially estimated at 77 p.ct. above pre-war level, so the critics who are prone to say that the price of gas is too high are speaking without sufficient knowledge of the subject.

THE COMPANY'S SUCCESS IN THE LAW COURTS.

No doubt many of you will have noticed in the newspapers a few days ago a report of an action in the Law Courts in connection with this Company. The action was of considerable importance to us, and I am sure you will all be glad to know that we succeeded in obtaining a verdict in our favour. The plaintiff in the action was a Mr. Deuchar, who recently purchased a small amount of maximum stock solely for the purpose of bringing this action as a shareholder. Mr. Deuchar is

the Secretary of the Castner-Kellner Company, who were acting, we are told, with other firms in this matter. The action was in the nature of an attempt to get an injunction to prevent the Company from manufacturing caustic soda; but, as their leading Counsel said, the real purpose was to prevent, in the interests of a portion of the chemical trades of the country, the Company from manufacturing substances which they required for the purpose of treating their residuals. Caustic soda, which we have hitherto purchased, is a material required in the manufacture of beta-naphthol. Recently, when extending our beta-naphthol plant, and going into the question of costs, we came to the conclusion that we could make caustic soda more cheaply than buy it, and we accordingly erected a plant at Beckton for the purpose. After hearing both sides, the Judge decided in our favour, and dismissed the action with costs. [Applause.] This was in itself an important case for the Company, but the principle which lay behind was much more important—namely, whether gas undertakings are to be free to manufacture such materials as they require for their own purposes, or whether they are to be compelled to purchase in markets in which, as in this case, there is practically no competition.

HARMONIOUS RELATIONS WITH LABOUR.

I am glad to say that during the past year our relations with labour, both in the Company and in the industry in general, have been most harmonious. Since 1921 the wages paid by this Company and the industry generally have been governed by a sliding-scale based upon the cost of living. This has worked very smoothly, and I am pleased to say that we have within the last week or two again come to an agreement with the men's representatives, which I believe will be mutually satisfactory. No agreement is of any use unless it has an element of mutual benefit.

THE VALUE OF CO-PARTNERSHIP.

As most of you are aware, we, as a Company, have a co-partnership scheme the basis of which is the payment to our employees of a bonus at a rate equal to that of the dividend on the ordinary stock of the Company; and this scheme has undoubtedly produced a genuine feeling of mutual interest among the Company's workers. A similar scheme might with advantage be adopted by many other industries, and I feel sure, as I have said before from this chair, that it would do much to bring about an understanding between employers and employed, and help practically towards the realization of the fact that capital is absolutely essential to industry, and is thus of equal importance to employers and employed. ["Hear, hear."] When the workers are themselves holders of capital, they are much more likely to be convinced of its utility than if they have no invested capital of their own. In fact, practice is better than precept. I might mention in this connection that the co-partners now hold approximately £450,000 of ordinary stock in the Company. I think that is a very fine thing indeed. Talking of the relations with our workmen, I told you a year ago that we were just starting a contributory pension fund for our workmen; and I think I am fully justified in saying, after twelve months of working, that it has been an unqualified success, and is much appreciated by all the men. ["Hear, hear."]

ENDOWMENT OF RESEARCH.

During the past year the Directors have instituted a Gas Light and Coke Company Fellowship at the Imperial College of Science and Technology, South Kensington, to enable research work to be carried out by a post-graduate. It has always been my belief—and it is shared by my colleagues—that there should be as close a relationship as possible between science and business.

THE HOME DYE INDUSTRY.

Although, as a rule, I do not refer to politics from this chair, there is one matter I should like to mention. I hope there will be no attempt to repeal the Dyestuffs (Import Regulation) Act, which was passed in 1920. The Germans had practically got a monopoly of the manufacture of all dyestuffs and of that branch of the chemical industry, to the great disadvantage of this country at the outbreak of war. In fact, it nearly cost us the war to begin with. It is quite impossible for this country to build-up a dye industry without some measure of protection, at all events during the first years. A great deal has been done already under this Act to make Great Britain independent of foreign supplies, but much remains to be done. This Company have taken their share in this work, and have spent considerable sums of money relying on this Act. If it were to be repealed, there is little doubt that foreign competition, particularly in the present state of exchanges, would be such as to render it unprofitable to make dye materials in this country—to our great detriment, and with the additional disadvantage of throwing a great number of men out of work.

THE BRITISH EMPIRE EXHIBITION.

As you are doubtless all aware, the British Empire Exhibition will be opened at Wembley in April, and the gas industry felt that it should do something worthy of the exhibition and of itself on this occasion. The industry is arranging a suitable exhibit, and this Company are contributing their share in providing money for the purpose. The main object of the British Empire Gas Exhibit will be to show the public the domestic and industrial applications for gas, and educate them in all the ways in which gas can serve in the house and in business. I hope that those of you who go to Wembley—and I have no doubt you will all find your way there—will not omit to visit the gas exhibit in the Palace of Industry.

A RECORD DAY'S OUTPUT.

I spoke in the early part of my speech about the increase in the sale of gas for the year—namely, 5 p.ct. Not only was the sale of gas for the year the largest on record, but we had a record day's output. On Nov. 26 we sent out nearly 157 million c ft. of gas, and we have frequently during this winter touched 150 millions in a day. We had an increase during the year of 11,000 consumers and of 67,000 gas-stoves sold and let on hire. That is a very fine record, I am sure, and it is one of which we are all very proud in the Company. [Applause.] Before I sit down, I would like to say a word in praise of all those who work in the Company. No one could wish to have a more loyal and hard-working body devoting itself most heartily and energetically to its work. This spirit is, in my belief, a good augury for the future of the Company. I now have pleasure in moving:

> That this meeting do agree with and confirm the report of the Directors and the Auditors' report and statement of the accounts of the Company as transmitted to the proprietors on the 26th ult.

The DEPUTY-GOVERNOR (Mr. J. Lister Godlee): I have pleasure in seconding the motion.

The GOVERNOR: Before putting the resolution, I shall be happy to hear any remarks which proprietors may wish to make on the report and accounts.

Mr. W. A. HOUNSOM said he was happy to be able to utter from that side of the table some words of sympathetic appreciation of the work that had been done by the Board during the past year. The co-partnership which had been spoken of by the Governor that morning was a co-partnership which should exist, and must exist, between all associated with the Company. He had read in the last issue of the Company's "Magazine" a short address by the Governor to the co-partners. It was very brief, but there was a great deal more in it than appeared on the surface; and it was the spirit of co-operation which underlay the words there printed that they needed in regard to this great Company. Even in that room, the atmosphere—the tone—was different from what it used to be; and the feeling which they had there they wanted to convey to all interested in the Company—from the occupant of the chair to the artizan who lit his gas-ring in the morning to make the water hot, with the Company's gas, for his early cup of tea. This was the spirit which was needed in all great commercial undertakings—and right up to the Imperial Parliament. Ideals were sometimes sneered at, but ideals they wanted; and an ideal that was pursued with faith, hope, perseverance, patience, and common sense might become a mighty factor in progress for all parties concerned. He thought also there should be some slight expression of their appreciation of what had been done in connection with the finances of the Company, and the dividend which it was proposed to declare that day. Proprietors in the Company were entitled to their dividend, and they had had it in the past, though, of course, they suffered cruelly through the war. ["Hear, hear."] He hoped they would all remember how much the Company did during the war, and he wished the outside public would remember as well. The public had a short memory, and the fact needed to be rubbed in from time to time, that, without the co-operation of the gas industry, led by their own Company, this country would have been in a very serious position during the war. As he had said, they were entitled to their dividend, but they wanted a steady rate of interest, just as every employee in the Company wanted a steady wage. They should be no party to gambles on the Stock Exchange. Their Company should be an example, which he hoped would be followed by the whole of the gas industry, in making their securities "gilt-edged." One could not have "gilt-edged" securities without steady returns.

The GOVERNOR: If there are no further remarks, I will put the resolution to the meeting. It is carried unanimously.

THE DIVIDENDS.

The GOVERNOR: I will now ask the Secretary to read the minute of the Court of Directors recommending dividends for the past half-year.

The SECRETARY therefore read the following from the Directors' minutes of the 21st of January:

> Resolved that it be recommended to the Ordinary General Meeting of Proprietors to be held on the 1st prox.: (1) That the sum of £20,000 be set aside out of the divisible profits of the Company for the half-year ending on the 31st day of December last towards the redemption fund, in accordance with the provisions of the Company's Acts of 1903 and 1909 and the Gas Light and Coke Company (Charges) Order, 1921; (2) that, subject to audit, dividends as follow for such half-year be declared, namely:
>
> On the 4 p.ct. consolidated preference stock, at the rate of . . . £4 0 0 p.ct. per annum
> On the 3½ p.ct. maximum stock, at the rate of . . . . . £3 10 0 „ „
> On the ordinary stock, at the rate of . . . . . £5 6 8 „ „
>
> All subject to deduction of income-tax; and
>
> (3) That the sum of £11,002 0s. 7d. be placed to the credit of the reserve fund.

These recommendations were adopted, on the proposition of the GOVERNOR, seconded by the DEPUTY-GOVERNOR.

RE-ELECTION OF DIRECTORS AND AUDITORS.

The GOVERNOR: The two Directors who retire by rotation are Mr. Thomas Goulden and Mr. Robert Martin Holland-Martin, C.B. They are both eligible for re-election, and I can only say that in these two gentlemen we have excellent Directors. Mr. Goulden, as you all know, has been long connected with the Company, and is an engineer of great experience; while Mr. Holland-Martin is an authority on Banking second to none in the country. They render the highest services to the Company, and I have very much pleasure in moving first that Mr. Thomas Goulden be re-elected.

The DEPUTY-GOVERNOR seconded the proposition, which was agreed to.

The GOVERNOR: I now beg to move that Mr. Holland-Martin be re-elected a Director.

The DEPUTY-GOVERNOR seconded this, which was also unanimously agreed to.

The Auditors (Messrs. John Allen Stoneham and Percy Howard Ashworth) were next re-elected, on the proposition of Mr. BEVIS, seconded by Mr. HODGE.

A VOTE OF THANKS.

Mr. F. G. PILLEY: The report that is in our hands, and the account given by the Governor in his exhaustive but concise address of the working of the past year, forms a picture which we are all here to-day to look at; but I do not think it would be right for us to disperse before setting that picture in a framework of thanks and appreciation of all that has been done. Looking at the value of the Company's stocks, I find that towards the end of last year our debenture stock gave a return

of £4 12s. 6d.—the identical figure of the Conversion Loan; while the ordinary stock varied last year from 90 to 100⅜, and yields a return now of about £5 13s. p.ct. on the purchase price. The latter stock is peculiarly liable to the effects of labour disturbance in almost every form, with the one exception, fortunately, of the labour which is attached to our own Company. I have much pleasure in proposing a very hearty vote of thanks to the Governor and members of the Court, our executive, engineers, staff, and all the workmen of the Company, for another year of successful work and good results. Perhaps if the Governor in his speech had lifted the veil a little more, and had allowed us to see all that was behind his simple tale, we might have realized better the constant need of care and watchfulness there has been during the past twelve months.

Mr. W. G. BEAUMONT: I have great pleasure in seconding that. The resolution was cordially passed.

The GOVERNOR: Mr. Pilley, ladies, and gentlemen, I wish to thank you heartily on behalf of my colleagues on the Board and myself, the executive officers, and employees—from among whom I see a number of co-partners here to-day—for the very kind vote of thanks you have given us for our work during the past year. The times we have been living through have been very arduous. Every morning one wakes up to find some new trouble looming ahead; but, perhaps by not taking too long views, and keeping a merry countenance and a cheerful heart, one manages to pull through. We hope, with your confidence, to carry on in the coming year, and to render a good account to you at the end of it.

ALDERSHOT GAS, WATER, AND DISTRICT LIGHTING COMPANY.

Annual Meeting of Proprietors.

The Ordinary General Meeting of the proprietors of the Company was held in the Board-room at the offices and showrooms in Lynchford Road, Farnborough, last Thursday afternoon—Mr. R. W. EDWARDS (the Chairman) presiding.

The report of the Directors was referred to on p. 269 of last week's issue of the "JOURNAL."

A LOSS TO THE COMPANY.

The CHAIRMAN, on rising, said: Before passing to matters arising out of the annual report and accounts for 1923, I feel it would be your wish that I should refer to the loss the Company sustained by the death on May 7 last of Mr. W. T. Robertson, who joined the Board in the autumn of 1898, and for many years, both as Director, and subsequently for a period of seven years as Chairman, gave his best services to the interests of this undertaking. It is, I am confident, your wish that there should pass from this meeting an expression of appreciation to Mrs. Robertson and family, and that such appreciation should be recorded in the Company's minutes. It has been suggested by a stockholder that a suitable record should be set-up to commemorate Mr. Robertson; and the Directors, having carefully considered the suggestion, have come to the conclusion, acting on the advice of Mr. T. Davison, F.R.I.B.A., that a panel, designed as is shown in the drawing on the walls here exhibited, should be fixed in a prominent position in the Chief Offices, Aldershot. At the same time, the Directors feel that the memory of the previous Chairman, Mr. A. F. Wilson, should be similarly perpetuated. Mr. Wilson entered into the service of the Company as Lessee-Engineer in 1874, became Director in 1881, and remained so until 1917, and, in that period, was Chairman from 1882 to 1910. A good deal of the foundation work of this Company was laid by Mr. Wilson; and those who knew him and worked with him were conscious of his outstanding sincerity and thorough and earnest effort to promote the interests of the Company.

THE ACCOUNTS.

Passing now to our report and accounts, I would incidentally mention that this is our sixth meeting since we obtained statutory powers to hold such events annually. It is not, however, the first time the Company's meetings have been held once a year, as previous to 1890 the Company held their meetings annually. In considering the report and accounts, particularly for 1923, it is essential to get into our minds a fair retrospect, in order that we may grasp some of the major points, and thereby obtain a clear perspective of past and present views. You will observe from the capital account that we have had a busy year. In the first place, the total amount authorized is £995,045 15s. 4d., and of this there has been received £602,506 10s. 9d. After deducting £40,989 8s. 3d., which was added on consolidation under the powers of our 1909 Act, there remains a debit balance of £13,871 18s. 5d. By this you will observe that great care has been taken in the financing of the undertaking, and prudence exercised to the utmost in avoiding the premature raising of new capital. After allowing depreciation shown of £3563 14s. 11d., the net total sum expended is £575,389 0s. 11d., or £39,454 0s. 5d. net expended in 1923. Of this last sum the expenditure is allocated to the various departments as follows:

Gas, to the extent of	. . . . .	89·9 p.ct.
Water, ,,	,, ,, ...	0·8 ,,
Electricity, ,,	,, ,, ...	9·3 ,,

Again, analyzing the expenditure under the heads of the various works, it falls as follows:

30·1 p.ct.	. . . . .	for new works, &c.
63·4 ,,	. . . . .	,, new mains.
4·9 ,,	. . . . .	,, meters.
1·2 ,,	. . . . .	,, machinery.
0·4 ,,	. . . . .	,, transformers.

GAS.

The first point which will at once strike you is that the expenditure of capital has been largest on the gas department, and this is due to the exceptional development, the full benefits of which we have yet to reap. This is understandable, for before the consumption stage arrives there is a considerable sum to be laid down for mains, services, meters, and fittings. In many parts of our extensive limits of supply (excepting in the borough of Aldershot, which was quiet) there was considerable activity exhibited, by way of expansion and new building. In addition to these, we have made some partial and practical headway with the important War Department contract which we have secured for the supply of gas for cooking and heating in the Aldershot Command. I can better illustrate what has been carried out during the twelve months by explaining that practically 1000 new gas consumers were connected, in addition to which we have fitted a very large number of extra stoves (cooking and heating), hot-water apparatus, &c., to existing installations. By the above epitome you will, I am sure, realize at once what an extraordinarily active and busy year it has been in the gas department; and I can assure you that there has been substantial evidence that the Company are reaping their proper returns from these extensions.

WATER.

In this department the progress has been rather modest (as is evidenced by the comparatively small capital expenditure of 0·8 p.ct. for the year), due to the quiet atmosphere prevailing in Aldershot until the early autumn. This department represents one of the greatest assets of this very important military area, for without a generous supply of pure and wholesome water the prosperity of Aldershot Town and the continuance of the Camp would be prejudiced. Your Directors have always been alive to these considerations, and have given much time and thought to the maintenance and development of our water undertaking. We have had the honour of supplying H.M. Government for many years, and have only recently received a further assurance of their utmost confidence in our services.

ELECTRICITY.

This department made notable progress during the past year. Many additional consumers were added, and the sales of current increased by 93·5 p.ct. The prospect is so very encouraging that we anticipate having to put down, in the near future, additional generating plant.

GENERAL.

In the smaller departments of the three main undertakings there has been considerable activity and increase of business, and the magnitude of the whole of our operations will be best illustrated when I tell you that we have on our books an equivalent of consumers, in all departments, approaching 24,000. We have strong hopes of making that into 30,000 within three years. Only this morning, I have figures before me for the month of January, and I think I am safe in saying that our increase so far during 1924 with regard to gas is 15 p.ct., electricity 75 p.ct., and water 10 p.ct. To sum up, we have met and overcome many obstacles and difficulties, and, after defraying all our expenses, were able to earn, within a few hundreds of pounds, our full statutory dividends. This is most gratifying and encouraging, having regard to the huge reductions that have been conceded to the consumers since Midsummer, 1921—representing a rate of approximately £40,000 per annum. On behalf of my colleagues and myself, I extend to you a welcome to these new premises. They represent the beginning of a great movement, and in time to come the site adjoining, of some 30 acres of freehold land (over which we have full statutory powers), is likely to be the centre of much industrial activity. The site is peculiarly suitable for our purpose, as geographically it is more central to our future fields of development. Before I submit the resolution for your consideration, I would make one more complimentary remark to our undertaking—and that is, we are the only one, so far as we know, in this country holding statutory powers to produce and supply gas, water, and electricity. We are particularly proud of this—especially so as it undoubtedly gives the investors a diversity of security not excelled in the industrial world. I now formally move: "That the Directors' report, with the statement of accounts, for the twelve months ended Dec. 31, 1923, be and are hereby adopted, and that the dividends as therein recommended be and are hereby declared to be forthwith payable to the proprietors."

The DEPUTY-CHAIRMAN (Dr. F. Stroyan, J.P.), in seconding the proposition for adoption of the report and accounts for 1923, made further sympathetic reference to the loss the Company had sustained by the death of Mr. W. T. Robertson, J.P., C.C.; and, there being no question arising on the accounts, the motion was put and carried unanimously.

On the proposition of the CHAIRMAN, seconded by Mr. B. R. GREEN, Mr. T. A. Braddock was unanimously re-elected a Director of the Company; and it was also resolved that the prescribed number of Directors be four.

Mr. Arthur E. Cutforth, F.C.A. (of Messrs. Deloitte, Plender, Griffiths, & Co.), was re-elected an auditor of the Company.

Mr. F. B. BATEMAN proposed, and Mr. H. MITCHELL seconded, a vote of thanks to the Chairman, Directors, and staff for their able conduct of the affairs of the Company, and this was passed unanimously.

Responding, the CHAIRMAN paid a tribute to the hard work and zeal displayed by the accountancy and secretarial staffs in closing the accounts and preparing the dividends so early, and also complimented the Gas and Water Engineer and Electrical Engineer and their respective staffs on the excellent results and rapid progress attained during the year.

In connection with the welcome to the new premises extended by the Chairman in his speech to the shareholders, it may be of interest to note that the idea in the design of these premises is that, as so far

erected, they form an east wing of a main building, which will be on a larger scale with a commodious main entrance. The west wing would then follow on the lines of the east wing, and ultimately the general buildings would form an alternative to the Company's present Chief Offices at Aldershot. The Architect is Mr. Percy H. E. Wells, of Aldershot, youngest son of the late Mr. Henry Wells, J.P., at one time a Director of the Company.

All the Directors and officers of the Company were present at the meeting, and, in addition, a number of the co-partner employees.

EAST KENT ELECTRICITY ORDER.

Application Withdrawn.

It was announced at a meeting of the Eastry Rural District Council on Tuesday, the 22nd ult., that the application for the East Kent Electricity Order had been withdrawn.

The matter has been before the local Council on several occasions, and a representative of the promoters, who in the first place were Sir Charles Bright and Partners, attended Council meetings. In consequence of his statements and the correspondence, some of the local authorities agreed to assent to the Order, subject to certain stipulations, which for the most part were accepted by the promoters. One of the strongest objections was to the proposal to bring current from Dover. The power station at Richborough was favoured as a source of supply, and failing what they considered sufficient guarantees as to this, the Sandwich Corporation gave notice of opposition, as the Eastry Rural District Council and the Dover Rural District Council had already done on various grounds. The Deal Town Council gave support to the scheme; but the opposition, including that of Messrs. Dorman Long & Co. and others, was too strong to warrant the promoters in going on, and for this reason the application has been withdrawn.

From remarks made in the Deal, Walmer, and District Chamber of Commerce, it would appear that the most hopeful prospect now of a supply of current locally is the establishment of a large power station in connection with the collieries.

TRADE NOTES.

Vaporizing.

Messrs. W. Parkinson & Co., of City Road, E.C. 1, have recently published a new edition of their "Vaporizing" pamphlet, written by Mr. B. R. Parkinson, M.I.Mech.E., in which is given an outline of this well-known process, together with a description of the "Parkinson" vaporizing plant.

Two More Calendars for 1924.

These are from Messrs. G. Waller and Son, Ltd., Phœnix Iron Works, Stroud, and Messrs. Davison and Partner, Ltd., Gas Engineers and Contractors, of No. 11, Carteret Street, Westminster, S.W.1. We acknowledge the receipt of these useful office calendars.

New Showrooms and Offices at Herne Bay.

The Herne Bay Gas Company are shortly commencing building operations for the provision of new showrooms and offices. The site selected is in the High Street, and the building has been designed by Mr. Jesse F. Scott, A.M.Inst.C.E., of No. 26, Abingdon Street, Westminster, S.W. The interior planning and decorative contract has been placed with the Nautilus Fire Company, Ltd., of No. 60, Oxford Street, London, W.

The Cambridge "Thermograph."

The Cambridge and Paul Instrument Company, Ltd., send us particulars of their thermographs and index thermometers. The charts for the recording instruments are 9½ in. in diameter, and revolve once in 7 days or in 24 hours. The indicating thermometers are made in two sizes having dials 8 and 13 in. in diameter. Full particulars of the apparatus are contained in List No. 112, which is obtainable from the firm at No. 45, Grosvenor Place, S.W.1.

Tully Gas Plants, Ltd.

We learn that this firm have received the following orders, through their French Agents, the Société Anonyme des Appareils de Manutention et Fours Stein, No. 48, Rue la Boétie, Paris, for Tully gasification plants: One plant of a capacity of 75,000 c.ft. per day for l'Usine à Gaz, de Sidi-Bel-Abbes, Algeria; two plants of 500,000 c.ft. per day for the Cia Espanola para la Fabrication Mecanica del Vidrio, Barcelona.

Limerick Price Reduction.—The price of gas in Limerick has been reduced from 7s. 6d. per 1000 c.ft. within the borough, and 8s. 6d. in the suburbs, to 5s. 9d. and 7s. 9d. respectively.

An International Advertising Convention.—Another convention, having important objects, is being arranged for the present year. This is the International Advertising Convention, organized by the Associated Advertising Clubs of the World, and it is to be held at the British Empire Exhibition, from July 14 to 19. The headquarters of the Associated Advertising Clubs are in the United States; and their objects are to improve merchandizing methods, to promote truth in advertising and honesty selling methods, to increase efficiency in sales promotion and organization, and to give publicity to, and extend, every advertising and selling interest. It is hoped through the conference to find means of lessening the difficulties which beset world trade, to make more widely known the resources of the British Empire, to demonstrate the excellence of British goods and British craftsmanship, to extend our world markets, to improve our methods of marketing our products, to organize British advertising selling to a higher pitch of efficiency, and to improve our international relations, commercial and diplomatic. All communications concerning the convention should be addressed to the Secretary, International Advertising Convention, Sentinel House, Southampton Row, London, W.C.

THE NORTH-EAST COAST COAL TRADE.

From our Own Correspondent.

The market has been slowly settling down after the disorganization due to the railway strike. While mineral traffic was quickly restored to normal, it was difficult to see at first how the market was going to shape; and up to about Thursday prices were a matter of negotiation, and in some cases very high, for those who urgently required bunkers or other coals.

At the end of the week, things became more or less stabilized round about a basis of 25s. Wear specials were quoting this price, and best gas qualities (Holmside, Boldon, &c., class) were 24s. 9d. to 25s., with seconds about 23s. 6d.

Colliery turns are full, with contractors pressing for full contract quantities and plenty of tonnage available, so that prompt coals are scarce and difficult to buy. Inquiry is brisk for the next few months, but foreign buyers are hesitating to pay these prices. At the same time, collieries are holding firm, and in many cases offering sparingly, anticipating a continuance of steady demand until labour prospects are more settled both here and in the United States. They mostly have a large enough proportion of their output sold ahead to enable them to hold out for their prices.

YORKSHIRE AND LANCASHIRE COAL TRADE.

From a Local Correspondent.

There is much uncertainty in the Yorkshire and Lancashire coal trade at the present time, owing to the recent railway strike. Collieries which are to some extent controlled by railway companies in respect of traffic and were kept working during the strike period, were in a more favourable position than those which were unable to obtain transport facilities from the beginning of the strike. Fortunately, the weather kept mild, and there was no serious shortage of household fuel during the last week of the strike. The difficulty at the moment is to provide the necessary empty wagons by which collieries can be kept in regular daily work; but it was anticipated that by working through last week-end much relief would be obtained.

In some instances collieries advanced prices considerably, but only in isolated instances. The majority preferred to keep to their uniform figures; and so far as can be ascertained all distributors did the same.

Judging from past experience, there will be some falling-off in the demand for all descriptions of fuel for a week or two until matters settle down, as will be seen by the fact that public utility works have ordered train loads of coal in anticipation of a strike and during the strike, which were not delivered until the termination of the dispute. This has caused a block of loaded traffic at many works. Hence large consumers are suspending delivery instructions even of contract coal for anything from a week to a fortnight.

The gas industry appears to have come out of the stoppage very well; and though some concerns have had to take advantage of the stocks previously accumulated, the position has not been serious. In fact, one of the largest works in the West Riding is having to put into stock deliveries which came through last week. Inquiries are forthcoming for forward contracts for commencement in a few months, and the opinion is expressed that many gas concerns will during 1924 make their contract arrangements much earlier than usual. This is probably due to the anticipated dispute with the miners, and also to last year's experience of many works having to pay slightly higher prices by waiting.

The export section is quiet, possibly because of the high rates of exchange operating against the nearer European countries; but the threatened dockers' strike may lead to some anxiety during the next fortnight.

COAL TRADE IN THE MIDLANDS.

From our Local Correspondent.

The way in which the menace to the gas supplies was overcome during the railway strike reflects credit on all concerned. Some of the undertakings off the main lines of traffic were placed in serious jeopardy. Deliveries could not be maintained from the customary sources of supply, but help was obtained in other directions, and with the co-operation of railway officials the transport facilities were provided. In not a few instances, relief came only just in the nick of time. Big undertakings on the arterial routes were much better circumstanced than the smaller gas-works, inasmuch as their requirements were such as to enable full trains to be loaded up and sent through direct with the use of a single engine. But there was not the hauling power to detach smaller consignments and get them to different destinations. In the desperate situation in which they found themselves, engineers whose reserves were nearing exhaustion were not particular about the price they paid for deliverance. Contractors state that some managements might have had a much more comfortable margin of safety, if they had chosen; but they took risks, in the hope of picking up cheap coal in a depreciated market. As far as the majority of engineers are concerned, however, they have been pressing for deliveries against contracts since the beginning of the year, and they and their suppliers were the victims of the difficult conditions that prevailed.

Last week-end great efforts were made to get rid of all coal which had been loaded up, and to redistribute wagons after the confused working under strike conditions. The dislocations, which to a great extent isolated the Yorkshire, Derbyshire, Nottinghamshire, and Leicestershire coalfields from the South and West, are being righted. Some time must elapse, however, before the proper balance can be restored. The Birmingham district was able to improve its position in regard to household and industrial fuel during the struggle, thanks to the short-circuiting of its local supplies. Efforts are now being directed to the overtaking of arrears in London and the South; and this can hardly fail to set up new stresses in the Midlands, having regard to the output which has been lost.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

LONDON, *Feb.* 4.

Pitch continues a weak market, and the price is purely nominal, although there seems to be slightly more inquiry for the article. Creosote is steady at from 10d. to 10¼d. per gallon. 95/160 solvent naphtha is about 1s. 4d. to 1s. 5d. per gallon; pure toluole about 1s. 8d. to 1s. 9d. per gallon. Benzole has advanced in sympathy with the recent increase in the price of petrol announced by the Petrol Companies. Other products are without alteration.

Tar Products in the Provinces.

Feb. 4.

The average values for gas-works products during last week were: Gas-works coal tar, 54s. 9d. to 59s. 9d. Pitch, East Coast, 75s. to 77s. 6d. f.o.b. West Coast—Manchester, 72s. 6d. to 75s.; Liverpool, 73s. 6d. to 76s.; Clyde, 74s. 6d. to 77s. Benzole 90 p.ct., North, 1s. 5d. to 1s. 5½d.; crude 65 p.ct. at 120° C., 9½d. to 10d. naked at makers' works; 50-90 p.ct., naked, North, 1s. 9½d. to 1s. 11½d. Toluole, naked, North, 1s. 4d. to 1s. 5d., nominal. Coal tar crude naphtha in bulk, North, 7½d. to 8d. Solvent naphtha, naked, North, 11d. to 1s. 1d. Heavy naphtha, North, 1s. 2d. to 1s. 3d. Creosote, in bulk, North, liquid, 8⅞d. to 9d.; salty, 8¼d. to 8¾d.; Scotland, 8½d. to 8¾d. Heavy oils, in bulk, North, 9d. to 9¼d. Carbolic acid, 60 p.ct., 2s. 1½d. to 2s. 4¾d. prompt. Naphthalene, £15 to £16; salts, £6 to £8, bags included. Anthracene, "A" quality, 4d. per minimum 40 p.ct., purely nominal; "B" unsaleable.

Imperial Continental Gas Association Distribution.

The Imperial Continental Gas Association announce that they have received from the Clearing Office (Enemy Debts) a sum of £188,900, being a third instalment (less commission) in respect of the compromise award of £1,550,000 on account of the outstanding balance of the Association's German claim under the Peace Treaty. Of this instalment, £128,972 represents a realized accretion to capital. This sum, together with the undistributed balance of previous instalments, will permit of a special distribution at the rate of 10 p.ct. The necessary resolution will be submitted at the general meeting in May next. As on the occasion of the previous distribution out of the sums representing realized accretion to capital, no liability attaches either to the Association or to the stockholder in respect of income or super tax. The balance of the above instalment—that is, £59,928—being revenue, will be included in the Association's revenue account for 1923.

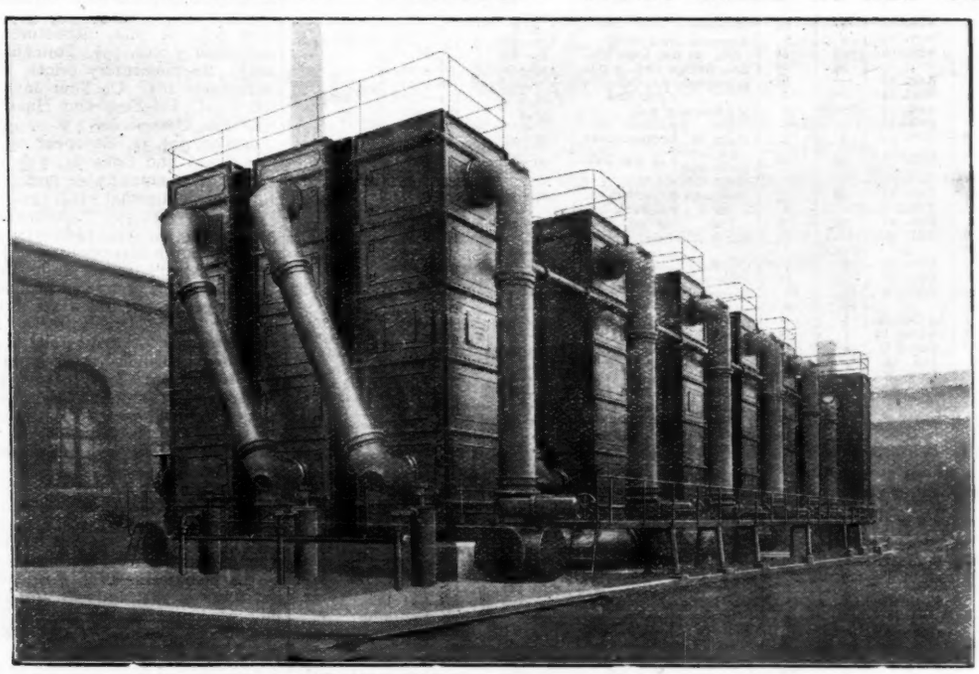
A fire at Scarisbrick Hall, near Southport, by which damage to the extent of several thousand pounds was done, is thought to have been caused by the fusing of an electric wire.

Improved Lighting of Scarborough.

The new system of lighting accepted by the Corporation some time ago will be in full operation by the end of April, if the hope of Mr. A. Philip Allan (the Secretary and Manager of the Gas Company) is realized. In certain areas of the town the ordinary single-burner street lamps have already had two-mantle burners fitted. In Westborough, near the station, some of the new columns to be used for the high-power lamp have appeared, and are of a handsome pattern. All single light lamps are to be abolished. In future—apart from the Marine Drive and Spa—there will be 1151 two-light lamps, 253 four-light lamps, 214 six-light lamps, and 84 twelve-light lamps. The Marine Drive is also to be fitted with twelve-light lamps. The Gas Company have, in addition, secured the order of the Spa Company. There will be 14 twelve-light lamps on the Promenade. Besides this, there will be three nine-light lamps, 27 six-light lamps, 90 four-light lamps, and five three-light lamps. The scheme will be put into operation progressively as the Company receive the necessary material, and it is claimed, says the local "Evening News," that when it is completed Scarborough will surpass any other seaside resort in the brilliance of its lighting.

Dover Gas Company.—At to-day's meeting, the accounts for the year 1923 will be submitted, and the Directors will report a gross profit of £12,742, as compared with £11,678 for the previous year, notwithstanding reductions in the price of gas during the year amounting to 1½d per therm, or 6¾d. per 1000 c.ft. An interim dividend at the rate of 7½ p.ct. per annum was paid, and the Directors have charged £600 on account of arrears of fees. They will recommend a final dividend at the same rate—viz., 7½ p.ct. per annum—being the full statutory dividend for the year, together with a further 1 p.ct. on account of back-dividend. The new showroom and offices in Biggin Street were opened at the beginning of August. They have been recognized by the consumers and the public generally as a great improvement, and the showroom has proved an unqualified success—a considerable number of stoves and other gas-appliances having been disposed of. The old premises in Russell Street have been sold to advantage, and the proceeds credited to capital account. Gas-engines are being installed in the works wherever possible, in place of steam; further retort-benches are being converted for working with regenerative furnaces; and other improvements are being carried out, all of which will result in increased economy. The Directors have decided to make a further reduction to ordinary and slot consumers of 2d. per therm (equal to 9d. per 1000 c.ft.) in the price of gas as from Lady-Day, which will make the price 1s. 0½d. per therm, or 4s. 8½d. per 1000 c.ft. This reduction has been announced through the local press, in display advertisements, which also draw attention to the advantages of gas in the matter of both cost and convenience. The Company are taking the fullest advantage of their opportunities, as is evidenced by the fact that in a little over two years the price of gas has been reduced by 6½d. per therm, or 3s. 6¾d. per 1000 c.ft.

LATEST IMPROVEMENTS—"BEARSCOT" TUBES—MADE IN ALL SIZES.



DEMPSTERS' WATER COOLED CONDENSERS.
CAPACITY "20 MILLION" CUBIC FEET OF GAS PER DAY.

R. & J. DEMPSTER, LTD., MANCHESTER.
LONDON OFFICE: 34, VICTORIA STREET, WESTMINSTER, S.W.1.

STOCK MARKET REPORT.

A MORE cheerful tone prevailed on the Stock Exchange during the past week. The settlement of the strike of the Locomotive Drivers and Firemen had a beneficial effect, but the possibility of further labour troubles prevented any material recovery. The speeches of the Bank Chairmen—all of whom spoke optimistically of the trade prospects—assisted towards the return of confidence in the financial conditions of the country.

Gilt-edged securities on the whole remained firm; the leading Home Government stocks showing fractional improvement. Home Rails, after a slight depreciation due to the profit-taking on the settlement of the strike, gradually improved. Sellers, however, were few. Industrials of the first-class order were more active; considerable interest being taken in steady dividend-paying concerns. Reports from most of the Provincial Exchanges also record activity in this market. At Birmingham, Nobel Industries advanced to 22s. 9d. At Bristol, Imperial Tobacco touched 71s. 9d. At Liverpool, Furness Withy advanced 1s. to 29s. 6d.; and at Sheffield, Hadfield rose 9d. to 21s. 3d. The further advance in the price of petrol, following on the increase in the oil prices, brought about considerable speculative buying. Shell Transport, Royal Dutch, Burmahs, and Anglo-Persian all showed gains.

Following on the reports of the big London gas companies, considerably more interest was taken in gas stocks. Gas Light ordinary, in which during the previous week business had been done at as low a price as 89, is now quoted 95-97. South Metropolitan ordinary, purchases of which were made at 92, is now quoted 95 98. Commercial 4 p.ct., which had been bought at 90, is now quoted 92-97. Imperial Continental, which had been bought at 134, is now quoted 136-141. Other changes were: Alliance and Dublin advanced 2 points, to 67-72, Commercial 3½ p.ct., 2 to 92-97, European ¼, to 6¾-7⅜ *ex* div., Gas Light 4 p.ct. preference 1, to 78-81, Primitiva ordinary 1/16, to ⅜-½, and Primitiva 5 p.ct. preference ½, to 1⅜-1⅝. Commercial 3 p.ct. debenture fell 1½, to 56-60, and Continental Union dropped 2, to 30-35.

The following transactions were recorded during the week: On Monday, Alliance and Dublin 69, British 115½, 117, Commercial 4 p.ct. 92, 3½ p.ct. 94⅜, 3 p.ct. debenture 56, Compania de Gas de la Habana 5 p.ct. bonds 99½, 100, European 6¾, 8½ *ex* div., Gas Light and Coke 93⅜, 94, 94½, 95, 95½, 4 p.ct. preference 80, Imperial Continental 133½, 136, Ottoman 24s. 6d., 25s., Primitiva 7s. 6d., 7s. 9d., 8s., 8s. 6d., 5 p.ct. preference 28s., 29s., 29s. 9d., 30s., South Metropolitan 95, 95¼, South Suburban 5 p.ct. 100½. Supplementary prices, British 7½ p.ct. debentures 102, Wandsworth 4 p.ct. debenture 76½, 76⅜. On Tuesday, Bombay 5 3/16, Brentford "A" 100, British 116, Cape Town 7 9/16, Commercial 4 p.ct. 93, 94½, 95, 3½ p.ct. 93, European 6½, Gas Light and Coke 95, 95½, 95⅜, 96, 96½, 96¼, 96⅜, Imperial Continental 135¼, Malta and Mediterranean 74s., Montevideo 57, Primitiva 7s. 6d., 8s., 5 p.ct. preference 30s., 30s. 9d., 31s., 31s. 6d., South Metropolitan 95, 95⅜, 96, 5 p.ct. preference 97⅜, 3 p.ct. debenture 58½, Wandsworth (Wimbledon 5 p.ct.) 106. Supplementary prices, British 3½ p.ct. debentures 59½. On Wednesday, Brentford "A" 101, 5 p.ct. preference 90½, Brighton and Hove original 176, "A" 128½, British 118, Gas Light and Coke 95¼, 95½, 95⅜, 96, 96½, 3½ p.ct. maximum 62¼, 4 p.ct. preference 79½, 3 p.ct. debenture 58, Liverpool 7 p.ct. preference 106½, Oriental 100, Primitiva 8s. 9d., 5 p.ct. preference 30s. 6d., 31s., 31s. 3d., South Metropolitan 96, 96¼, 96½, 3 p.ct. debenture 59¼, 6½ p.ct. debenture 104⅜, South Suburban 5 p.ct. 99½, Tottenham "B" 101¾, 101⅞. Supplementary prices, British 7½ p.ct. debentures 105. On Thursday, Bournemouth "B" 12⅛, Brighton and Hove original 176, "A" 128, Commercial 4 p.ct. 95½, Continental Union 30, 30½, 32, European 6⅝, 6¾, 7 *ex* div., Gas Light and Coke 93, 95¼, 95¼, 96, 96⅛, 3½ p.ct. maximum 63¼, 4 p.ct. preference 78⅜, Imperial Continental 133½, 135, 135⅜, 136, 136½, 137, Montevideo 57½, Primitiva 8s. 3d., 5 p.ct. preference 31s., 31s. 1½d., 31s. 3d., 31s. 4½d., 31s. 6d., South Metropolitan 96⅜, 96½, Tottenham "B" 101½, 101⅞. Supplementary prices, Ottoman 7 p.ct. preference 30s. 6d., Tottenham 5 p.ct. preference 91½. On Friday, Bournemouth "B" 12⅜, Brentford "A" 101, Brighton and Hove 177½, Commercial 4 p.ct. 95½, 96, Continental Union 30, European 7⅛ *ex* div., Gas Light and Coke, 95¼, 95½, 96, 4 p.ct. preference 80, Imperial Continental 136, 139⅜, 141, Primitiva 7s. 7½d., 5 p.ct. preference 30s. 6d., South Metropolitan 96⅜, South Suburban 5 p.ct. 101, Wandsworth Epsom stock 110.

At the close of the month conditions in Lombard Street were easier. Fresh money was available at 2 p.ct. for the night, continuing loan being 2½ p.ct. It was not thought, however, that the market had benefited to the full by the disbursements in dividends and the repayments of the National War Bonds. Bank bills weakened on the average Treasury bills rate, which averaged £3 5s. 7·83d., as compared with £3 7s. 11·46d.

The renewed American demand for sterling was the feature of the Foreign Exchange market on Friday, and the New York rate rose at one time to $4.32⅜, closing finally at $4.32. There was renewed firmness in French francs; the quotation being 91.50-92.30, as compared with 93.10-94.40. Belgian francs were, however, slightly weaker.

The Silver market was well maintained, the price closing on Friday at 33 5/16d. per oz.

The Bank rate is 4 p.ct., to which it was raised from 3 p.ct. on July 5.

ANTE-WAR PRICES AND DIVIDENDS, LATEST DIVIDENDS, AND LAST WEEK'S TRANSACTIONS.

Issue.	Share.	When ex-Dividend.	Ante-War Dividend & Bonus.	Last Divid. at Rate of	NAME.	Closing Prices, July 30, 1914.	Variation. Quotations, Feb. 1.	Variation. Lowest and Highest Prices of Transactions.
£			p.c.	% p.a.				
131,978	Stk.	Aug. 9	—	5	Aldershot 5 p.c. max. C.	..	72—77	...
217,992	,,	,,	4	4	Do. 4 p.c. Pref.	..	70—75	...
1,551,868	,,	Oct. 4	2½	5½	Alliance & Dublin Ord.	59—64	67—72	69
374,000	,,	Jan. 10	4	4	Do. 4 p.c. Deb.	76—79	60—65	...
280,000	5	Oct. 18	7½	8	Bombay, Ltd.	5—5⅛	5—5⅛	5 3/16
100,000	10	Aug. 9	—	8½	Bournemouth Gas and Water { 5 p.c. B	12½—13½	12½—13½	...
383,110	10	,,	7	7	Bournemouth Gas and Water { 7 p.c. Pref.	13—13½	12½—12⅝	12½—12⅝
115,000	10	,,	6	6	Bournemouth Gas and Water { 6 p.c.	13½—14	11—12	...
162,025	—	Dec. 28	—	4	Bournemouth Gas and Water { 4 p.c. Deb.	..	75—80	...
992,045	Stk.	July 12	—	6⅜	Brentford A Consolid.	..	98—103	100—101
734,920	,,	,,	—	6½	Do. B New	..	98—103	...
55,000	,,	,,	5	5	Do. 5 p.c. Pref.	109—111	99—95	99½
221,400	,,	Dec. 13	4	4	Do. 4 p.c. Deb.	92—93	76—81	...
214,745	,,	Aug. 23	11	11½	Brighton & Hove Orig.	208—213	175—180	176—177½
244,200	,,	,,	8	8½	Do. A Ord. Stk.	154—159	127—132	128—128½
1,287,500	Stk.	July 26	—	5	Bristol 5 p.c. max.	..	93—95a	...
570,000	20	Oct. 4	12½	12	British A Ord.	44—45	115—120	115½—118
100,000	10	Dec. 28	—	7	Do. 7 p.c. Pref.	..	120—125	...
120,000	Stk.	,,	4	4	Do. 4 p.c. Deb. Stk	88—90	73—78	...
100,000	10	,,	—	6	Cape Town & Dis., Ltd'	1⅞—2⅛	6¾—7⅛	7 1/16
100,000	10	Oct. 31	—	4½	Do. 4½ p.c. Pref.	4—6	6—7	...
150,000	Stk.	Dec. 28	4½	4½	Do. 4½ p.c. Deb. Stk.	70—75	73—78	...
237,860	,,	,,	—	7½	Cardiff 7½ p.c. Deb.	..	105—110	...
157,150	,,	Aug. 9	5	5	Chester 5 p.c. Deb.	108—110	85—90b	...
1,513,280	,,	July 25	5/9/4	6	Commercial 4 p.c. Stk.	106—108	92—97	92—96
560,000	,,	,,	5½	6	Do. 3½ p.c. do.	103—105	92—97	93—94½
475,000	,,	Dec. 13	3	3	Do. 3 p.c. Deb. Stk.	69½—71½	56—60	56
800,000	,,	14 Jan. 15	4	—	Continental Union, Ltd.	76—79	30—35	30—32
200,000	,,	Dec. 13	7	7	Do. 7 p.c. Pref.	115—118	78—83	...
660,000		Aug. 9	—	6½	Croydon sliding scale.	..	102—105	...
284,975		,,	—	5	Do. max. div.	..	85—88	...
492,270	Stk.	—	6	4½	Derby Con. Stk.	125—135	107—110c	...
55,000	,,	—	4	4	Do. Deb. Stk.	102—104	74—76c	...
209,000	,,	—	—	5	East Hull 5 p.c. max.	..	..	...
1,002,180	10	Jan. 24	10	2	European, Ltd.	17½—18	6¾—7¼*	6½—7½
16,546,120	Stk.	July 26	4/17/4	5½	Gas { 4 p.c. Ord	98—102	95—97	93—96¾
2,600,000	,,	,,	3½	3½	Gas { 3½ p.c. max.	76—79	62—65	62½—63¾
4,062,235	,,	,,	4	4	Light { 4 p.c. Con. Pref.	96—99	78—81	78½—80
4,761,930	,,	Dec. 13	3	3	and { 3 p.c. Con. Deb.	72½—74½	57—60	58
130,000	,,	Dec. 11	10	10	Coke { 10 p.c. Bonds	..	..	...
42,000	—	—	—	7½	Coke { 7½ p.c. Ilford Deb.	..	..	...
82,500	,,	Sept. 19	5	6⅔	Hastings & St. L. 5 p.c.	..	93—98	...
258,740	,,	,,	3½	5⅛	Do. 5½ p.c.	87—89	78—83	...
70,000	10	Oct. 18	11	10	Hongkong & China, Ltd.	16½—16¾	16—17	...
86,600	Stk.	Aug. 23	9	9½	Hornsey 7 p.c.	..	144—149	...
1,976,000	,,	Nov. 15	9	5	Imperial Continental	130—160	136—141	133½—141
401,400	,,	Aug. 9	3½	3½	Do. 3½ p.c. Deb. Red.	84—86	74—77	...
235,242	,,	,,	6½	6½	Lea Bridge Ord. 5 p.c.	119—121	93—100	...
2,127,240	,,	Aug. 23	—	5½	Liverpool 5 p.c. Ord.	—	88—89b	...
600,000	,,	Sept. 19	—	7	,, 7 p.c. Pref.	..	104—107b	106½
165,736	,,	Aug. 23	7/5/6	9	Maidstone 5 p.c.	—	125—130	...
63,480	,,	Dec. 28	—	—	Do. 3 p.c. Deb	—	54—59	...
75,000	5	Dec. 13	6	5	Malta & Mediterranean Met. of Melbourne { 4½ p.c. Deb.	4½—4¾	3¾—3½	74/-
50,000	100	Oct. 1	4½	4½		99—101	95—98	...
541,920	Stk.	Nov. 29	4	4	Montevideo, Ltd.	..	54—59	57—57½
1,875,892	,,	July 26	4½	4½	Newcastle & Gatsh'dCon.	98½—99½	84½—85½d	...
250,166	,,	Aug. 9	—	4	Do. 4 p.c. Pref. Stk.	..	74½—70½d	...
529,705	,,	Dec. 28	3½	3½	Do. 3½ p.c. Deb.	82—83	72—73d	...
15,000	10	Aug. 23	—	11	North Middlesex 10 p.c.	—	16½—17½	...
75,940	10	,,	7/14/0	7 7/10	,, 7 p.c.	14—15	11½—12½	...
300,000	Stk.	Nov. 29	8	9	Oriental, Ltd.	117—122	97—102	100
138,120	Stk.	Dec. 28	—	7½	Plym'th & Stonh'se 5 p.c.	—	105—110	...
60,000	50	Sept. 6	13	13	Portsea Island, B	128—131	105—110	...
100,000	50	,,	12	12	Do. C	118—121	100—105	...
1,450,345	5	29 Oct. 14	8	—	Primitiva Ord.	5½—6	⅞—1	7/6—8/9
2,499,800	5	30 Dec. 15	5	—	Do. 5 p.c. Pref.	4½—5	1⅛—1½	28/—31/6
341,400	100	Dec. 3	4	4	Do. 4 p.c. Deb.	91—93	70—75	...
600,000	Stk.	Jan. 24	4	4	Do. ,, ,, 1911	—	54—57*	...
220,333	,,	Dec. 28	4	4	Do. B. Aires 4 p.c. Deb.	85—87	55—58	...
321,670	,,	,,	4	4	Do. Riv. Pl. 4 p.c. Deb.	85—87	55—58	...
150,000	10	Oct. 4	6	6	San Paulo { 6 p.c. Pref.	10½—11	5½—6	...
125,000	50	Jan. 2	5	5	San Paulo { 5 p.c. Deb.	47—49	37—40	...
270,000	Stk.	Aug. 23	—	5	Sheffield A	..	100—102a	...
419,968	,,	,,	—	5	Do. B	..	100—102a	...
1,047,000	,,	,,	—	5	Do. C	..	99—101a	...
133,201	Stk.	,,	4	6	Shrewsbury 5 p.c.	—	..	...
90,000	10	Oct. 18	9	6	South African	10½—11½	7—9	...
5,609,895	Stk.	July 26	5/9/4	5	South Met. Ord.	111—113	95—98	95—96⅞
250,000	,,	Jan. 10	—	5	Do. Red. Pref.	—	97—99	97⅛
1,895,445	,,	,,	5	5	Do. 3 p.c. Deb.	72½—74½	57—60	58½—59½
734,000	,,	Sept. 6	—	6½	Do. 6½ p.c. Deb.	..	103—105	104½
91,500	,,	Aug. 23	8½	8½	South Shields Con. Stk.	137—139	136—138d	...
1,087,795	,,	,,	6	6	S'th Suburb'n Ord. 5 p.c.	114—116	97—102	99½—101
368,837	,,	Dec. 28	5	5	Do. 5 p.c. Deb. Stk.	116—118	95—100	...
647,740	,,	Nov. 15	5	5	S'th'mpt'n Ord. 5p.c. max	99—102	85—90	...
121,275	,,	Dec. 28	4	4	Do. 4 p.c. Deb. Stk.	..	74—79	...
250,000	,,	Aug. 23	—	4	Swansea 7 p.c. Pref. Stk.	..	102—104	...
200,000	,,	Dec. 28	—	6½	Do. 6½ p.c. Deb. Stk.	..	102—104	...
120,000	,,	July 26	—	8	Tottenham District { A 5 p.c.	135—138	122—127	...
782,275	,,	,,	6	6½	Tottenham District { B 3½ p.c.	115—117	100—105	101½—101⅞
181,255	,,	Dec. 13	4	4	Tottenham District { 4 p.c. Deb.	87—89	77—81	...
258,251	Stk.	Aug. 23	5	5	Tynemouth 5 p.c. max.	108½—109	89—91d	...
					Wandsworth, Wimbledon, and Epsom—			
30,000	,,	July 12	8½	9	Wandsworth A 5 p.c.	151—156	132—137	...
255,636	,,	,,	6½	7½	Do. B 3½ p.c.	129—134	110—115	...
108,075	,,	,,	5/17/3	6⅔	Do. C.	110—115	98—103	...
140,865	,,	,,	—	6⅔	New Ordinary	..	..	...
352,000	,,	,,	6½	7½	Wimbledon 5 p.c.	117—122	105—110	106
98,000	,,	,,	6½	7½	Epsom 5 p.c.	121—126	110—115	110
88,416	,,	Dec. 28	5	5	5 p.c Deb. Stk.	66—69	56—61	...

Quotations at:—a.—Bristol. b.—Liverpool. c.—Nottingham. d.—Newcastle. s.—Sheffield. * Ex div.

Birmingham Gas Department and the Rates.—The Birmingham Gas Department have decided to contribute £15,000 from profits to the relief of the rates. The last grant was £30,758, in 1917-18.

Industrial Carbonization, Ltd., has been registered as a company, with a capital of £50,000, in 40,000 "A" shares of £1 and 200,000 "B" shares of 1s. The office is at No. 1, Charing Cross, S.W.

Lancaster Gas Undertaking.—It was reported at the meeting of the Lancaster Town Council last Wednesday that the Gas Committee would have to pay £5000 more for coal than was expected this year. A new 12-in. gas-main, costing £1200, is to be carried over Skerton Bridge. Authority was given to purchase a portable compressing plant to clear the main.

Gas-Meter Testing Service in London.—The Public Control Committee reported to last week's meeting of the London County Council that it is difficult at the present time to estimate what the ultimate fixed staff of inspectors of gas-meters should be. A new office is now in course of erection at Finsbury, and on its completion it is proposed, if possible, to dispose of one, or perhaps two, of the existing offices. An increase from two to three in the fixed staff of senior inspectors will probably be necessary, but at present it is not easy to determine the classification of the remaining inspectorate. In any event, however, it is not anticipated that the total number of inspectors will require to be increased. For the reasons indicated, the Committee are not at the moment proposing to fill the vacancy for a senior inspector of gas-meters.

Successful Year at Congleton.—The report of the Gas Manager (Mr. W. A. Cartledge) on the operations of the Corporation Gas-Works during the year ended March 31 last has been submitted to the Town Council. In this Mr. Cartledge said it was satisfactory to note that, in spite of the general depression in trade, it had been one of the most successful years in the history of the undertaking. During the year the price of gas had been reduced 1s. 3d. per 1000 c.ft. The consumption for all purposes continued to increase; the total being 5·2 p.ct. in excess of the previous financial year, and 38·7 p.ct. more than in the year ended March, 1913. The extended use of gas for heating and cooking was largely responsible for the sales. The balance-sheet disclosed the fact that coal and cartage had cost £10,429, against £15,555, or £5126 less than in the previous year; and the maintenance of works £1293, against £1876. On the income side, in spite of the reduction of 1s. 3d. per 1000 c.ft. in gas charges, sales produced £17,396, against £18,136 in the previous year. The gross profit on the working was £3955, and after adding £238, bank interest, and deducting £2415 for interest on and redemption of loans, and income-tax charges, the net profit was £1778. The report was regarded as very satisfactory.

Retford Holder Alteration and Repairs.—On p. 271 of last week's "JOURNAL," when referring to alteration and repairs to a spiral holder at the Retford Gas-Works, it was stated that the total amount of the contract was £11,270. This should have read £3270.

Scunthorpe Gas-Works Success.—Reference to achievements at the Scunthorpe Gas-Works was made recently by Councillor W. S. Liddall, J.P., at a meeting of the local Co-operative Society. He said that during the past year the Scunthorpe Urban District Council had made substantial progress. The new gas-works had been completed, and notwithstanding the pessimists, both on and off the Council, he was pleased to tell them that the new works had been officially tested, and they were a success. The new works were capable of manufacturing gas of an exceedingly good quality, and with the provision of another generator would be able to supply the whole of the amalgamated area with all the gas it required.

The Calverley and Horsforth Gas Company have intimated to consumers at Rawdon a reduction in gas prices by 1d. per therm (equivalent to 5d. per 1000 c.ft.).

The Bury Lighting and Heating Company has been registered, with a capital of £1000, to carry on the business of heating, lighting, and ventilating engineers. The office is at No. 9, Elton Road, Bury.

The annual dinner given by the Directors to the staff and employees of Burners (1921) Ltd., Stoke Prior Mills, Bromsgrove, took place last Friday week. Advantage was taken of the occasion to celebrate the successful debut of the new "Silent" burner. A sketch by the Works Dramatic Society, followed by dances and songs, filled the evening's programme.

Messrs. John Terry & Co., No. 7, Great Winchester Street, E.C., as agents, have received a cablegram from their principals, the Metropolitan Gas Company of Melbourne, informing them that for the half-year to Dec. 31 last the net profits of the Company were £95,338. A dividend of 6s. 6d. per share has been declared, £30,000 has been placed to reserve account, and £71,440 has been carried forward.

The Sheffield Gas Company's Sports Club held their Annual Social and Concert in the Concert Hall of the Grimesthorpe Gas-Works, on Saturday, Jan. 26, Mr. Halkett presiding. There was a very good turn-out of the employees and their friends, between 200 and 300 sitting down to tea, which was followed by an excellent programme of songs and stories. The Club is composed of several sections, among which during the evening Mrs. Halkett presented prizes to the successful competitors in cricket, tennis, bowling, and angling. A very enjoyable evening concluded with a vote of thanks to the Chairman and Mrs. Halkett.

NOW READY.

THE

GAS SALESMAN'S DIARY

for 1924

(With Useful Data for Reference).

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The Diary at each opening gives the six working days of the week, with spaces for the details of engagements. The Useful Data which have been compiled occupy many pages at the end of the book; and blank pages are provided for notes for corresponding local data. Included is information regarding the officers and membership of the Salesmen's Circles; and a complete Index to the Data and other matter is provided.

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Orders to Alter or Stop PERMANENT ADVERTISEMENTS should be received by the FIRST POST on Monday.

UNDISPLAYED ADVERTISEMENTS; Situations Wanted, Six Lines and under (about 36 words), 3s.; each additional Line, 6d. Situations Vacant, Apparatus Wanted and for Sale, Contracts, Public Notices, &c., 9d. per Line—minimum, 4s. 6d.

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